

**Appendix E**  
**IRT Item Parameters**

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Table E1  
Item Parameters for Mathematics Grade 3 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |        |
|--------|------------------|-----------|-----------------|--------|--------|
|        |                  |           | a               | b      | c      |
| 1      | C                | MC        | 0.503           | -2.379 | 0.150  |
| 2      | C                | MC        | 0.513           | -3.164 | 0.150  |
| 4      | C                | MC        | 0.622           | -2.306 | 0.150  |
| 10     | C                | MC        | 0.809           | -2.107 | 0.082  |
| 12     | C                | MC        | 0.802           | -1.989 | 0.200  |
| 13     | C                | MC        | 1.024           | -1.450 | 0.241  |
| 14     | C                | MC        | 0.587           | -2.433 | 0.200  |
| 16     | C                | MC        | 0.784           | -3.045 | 0.200  |
| 17     | C                | MC        | 0.617           | -2.551 | 0.200  |
| 18     | C                | MC        | 0.539           | -4.515 | 0.200  |
| 24     | C                | MC        | 0.957           | -3.144 | 0.166  |
| 31A    | U                | CR        | 1.268           | -0.802 |        |
| 31B    | U                | CR        | 0.847           | -0.965 | -0.494 |
| 32     | C                | MC        | 0.738           | -0.033 | 0.297  |
| 34     | C                | MC        | 1.011           | -0.291 | 0.244  |
| 35     | U                | MC        | 1.048           | -2.208 | 0.200  |
| 36     | C                | MC        | 0.857           | -2.139 | 0.151  |
| 37     | C                | MC        | 0.839           | 1.108  | 0.339  |
| 38A    | U                | CR        | 0.950           | -1.470 |        |
| 38B    | U                | CR        | 0.906           | -1.205 | 2.054  |
| 39     | C                | MC        | 1.486           | -1.134 | 0.115  |
| 40     | C                | MC        | 0.757           | -2.283 | 0.200  |
| 41     | C                | MC        | 1.190           | -0.869 | 0.213  |
| 42     | C                | MC        | 0.414           | -2.734 | 0.200  |
| 43     | U                | MC        | 0.344           | -1.055 | 0.000  |
| 44     | U                | MC        | 0.915           | -0.986 | 0.248  |
| 45A    | U                | CR        | 1.352           | 0.500  |        |
| 45B    | U                | CR        | 1.260           | -0.287 | 2.644  |
| 46     | U                | MC        | 1.045           | -0.284 | 0.180  |
| 47     | U                | MC        | 0.806           | -1.417 | 0.200  |
| 48     | C                | MC        | 1.047           | -0.301 | 0.043  |
| 49     | C                | MC        | 0.737           | -1.088 | 0.159  |
| 50     | U                | MC        | 0.843           | -0.290 | 0.144  |
| 51     | C                | MC        | 1.183           | -0.682 | 0.238  |
| 52     | C                | MC        | 1.094           | -1.092 | 0.182  |
| 53     | U                | MC        | 0.880           | 0.367  | 0.133  |
| 54     | C                | MC        | 0.779           | -1.603 | 0.200  |

Table E1 (cont.)  
Item Parameters for Mathematics Grade 3 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |        |
|--------|------------------|-----------|-----------------|--------|--------|
|        |                  |           | a               | b      | c      |
| 55     | C                | MC        | 1.263           | -1.747 | 0.259  |
| 56     | U                | MC        | 0.528           | -2.692 | 0.200  |
| 57     | C                | MC        | 0.679           | -1.901 | 0.166  |
| 58A    | U                | CR        | 1.305           | -3.154 |        |
| 58B    | U                | CR        | 0.832           | -1.053 | 1.849  |
| 59     | C                | MC        | 0.796           | -2.655 | 0.091  |
| 60     | C                | MC        | 0.832           | -0.881 | 0.278  |
| 61     | C                | MC        | 0.965           | -0.835 | 0.421  |
| 62     | C                | MC        | 1.121           | 0.165  | 0.153  |
| 63     | C                | MC        | 0.654           | -1.630 | 0.075  |
| 64     | U                | MC        | 1.127           | 0.008  | 0.171  |
| 65     | U                | MC        | 1.073           | -1.455 | 0.095  |
| 66A    | U                | CR        | 0.993           | -1.917 |        |
| 66B    | U                | CR        | 1.133           | -1.786 | 1.403  |
| 67     | C                | MC        | 0.368           | -2.338 | 0.200  |
| 68     | C                | MC        | 0.891           | -0.689 | 0.197  |
| 69     | C                | MC        | 0.902           | -0.219 | 0.117  |
| 70     | U                | MC        | 0.784           | -2.807 | 0.200  |
| 71     | C                | MC        | 1.217           | -0.898 | 0.173  |
| 72A    | U                | CR        | 1.024           | -1.857 |        |
| 72B    | U                | CR        | 0.620           | -1.430 | -0.453 |
| 73     | U                | MC        | 0.968           | -1.374 | 0.070  |
| 74     | C                | MC        | 0.709           | 1.592  | 0.171  |
| 75     | C                | MC        | 0.746           | -3.235 | 0.200  |
| 76     | C                | MC        | 1.410           | -0.208 | 0.195  |
| 77A    | U                | CR        | 1.384           | -2.405 |        |
| 77B    | U                | CR        | 1.023           | -1.601 | 0.297  |

Table E2  
Item Parameters for Mathematics Grade 3 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |        |
|--------|------------------|-----------|-----------------|--------|--------|
|        |                  |           | a               | b      | c      |
| 1      | C                | MC        | 0.503           | -2.379 | 0.150  |
| 2      | C                | MC        | 0.513           | -3.164 | 0.150  |
| 4      | C                | MC        | 0.622           | -2.306 | 0.150  |
| 10     | C                | MC        | 0.809           | -2.107 | 0.082  |
| 12     | C                | MC        | 0.802           | -1.989 | 0.200  |
| 13     | C                | MC        | 1.024           | -1.450 | 0.241  |
| 14     | C                | MC        | 0.587           | -2.433 | 0.200  |
| 16     | C                | MC        | 0.784           | -3.045 | 0.200  |
| 17     | C                | MC        | 0.617           | -2.551 | 0.200  |
| 18     | C                | MC        | 0.539           | -4.515 | 0.200  |
| 24     | C                | MC        | 0.957           | -3.144 | 0.166  |
| 31A    | U                | CR        | 1.337           | -1.769 |        |
| 31B    | U                | CR        | 1.122           | -1.282 | 1.743  |
| 32     | C                | MC        | 0.738           | -0.033 | 0.297  |
| 34     | C                | MC        | 1.011           | -0.291 | 0.244  |
| 35     | C                | MC        | 1.410           | -0.208 | 0.195  |
| 36     | C                | MC        | 0.857           | -2.139 | 0.151  |
| 37     | C                | MC        | 0.839           | 1.108  | 0.339  |
| 38A    | U                | CR        | 1.178           | -0.977 |        |
| 38B    | U                | CR        | 1.244           | -1.037 | 4.089  |
| 39     | C                | MC        | 1.486           | -1.134 | 0.115  |
| 40     | C                | MC        | 0.757           | -2.283 | 0.200  |
| 41     | C                | MC        | 1.190           | -0.869 | 0.213  |
| 42     | C                | MC        | 0.414           | -2.734 | 0.200  |
| 43     | U                | MC        | 1.363           | -0.901 | 0.131  |
| 44     | U                | MC        | 0.736           | -0.626 | 0.074  |
| 45A    | U                | CR        | 0.668           | -0.463 |        |
| 45B    | U                | CR        | 0.962           | -0.731 | -0.054 |
| 46     | U                | MC        | 0.893           | 0.529  | 0.066  |
| 47     | U                | MC        | 0.598           | -0.870 | 0.200  |
| 48     | U                | MC        | 1.045           | -1.332 | 0.200  |
| 49     | C                | MC        | 0.737           | -1.088 | 0.159  |
| 50     | C                | MC        | 0.709           | 1.592  | 0.171  |
| 51     | U                | MC        | 1.177           | 0.303  | 0.161  |
| 52     | U                | MC        | 1.244           | -2.151 | 0.200  |
| 53     | C                | MC        | 1.183           | -0.682 | 0.238  |
| 54     | C                | MC        | 0.779           | -1.603 | 0.200  |

Table E2 (cont.)  
Item Parameters for Mathematics Grade 3 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |       |
|--------|------------------|-----------|-----------------|--------|-------|
|        |                  |           | a               | b      | c     |
| 55     | C                | MC        | 1.263           | -1.747 | 0.259 |
| 56     | C                | MC        | 1.094           | -1.092 | 0.182 |
| 57     | C                | MC        | 0.679           | -1.901 | 0.166 |
| 58A    | U                | CR        | 1.566           | -5.253 |       |
| 58B    | U                | CR        | 1.377           | -1.035 | 2.145 |
| 59     | C                | MC        | 0.796           | -2.655 | 0.091 |
| 60     | C                | MC        | 0.832           | -0.881 | 0.278 |
| 61     | C                | MC        | 0.965           | -0.835 | 0.421 |
| 62     | C                | MC        | 0.654           | -1.630 | 0.075 |
| 63     | U                | MC        | 1.520           | -0.384 | 0.500 |
| 64     | C                | MC        | 1.121           | 0.165  | 0.153 |
| 65     | U                | MC        | 0.866           | -1.713 | 0.000 |
| 66A    | U                | CR        | 1.661           | -1.210 |       |
| 66B    | U                | CR        | 1.092           | -1.781 | 0.010 |
| 67     | C                | MC        | 0.368           | -2.338 | 0.200 |
| 68     | C                | MC        | 0.891           | -0.689 | 0.197 |
| 69     | C                | MC        | 0.902           | -0.219 | 0.117 |
| 70     | U                | MC        | 0.697           | -0.266 | 0.069 |
| 71     | C                | MC        | 1.047           | -0.301 | 0.043 |
| 72A    | U                | CR        | 1.874           | -1.584 |       |
| 72B    | U                | CR        | 1.339           | -1.149 | 1.436 |
| 73     | C                | MC        | 1.217           | -0.898 | 0.173 |
| 74     | U                | MC        | 0.888           | -2.330 | 0.200 |
| 75     | C                | MC        | 0.746           | -3.235 | 0.200 |
| 76     | U                | MC        | 0.803           | -2.364 | 0.200 |
| 77A    | U                | CR        | 1.927           | -1.580 |       |
| 77B    | U                | CR        | 1.374           | -3.171 | 0.739 |

Table E3  
Item Parameters for Mathematics Grade 4 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |        |
|--------|------------------|-----------|-----------------|--------|--------|
|        |                  |           | a               | b      | c      |
| 1      | C                | MC        | 0.540           | -2.132 | 0.150  |
| 2      | C                | MC        | 0.513           | -1.195 | 0.103  |
| 3      | C                | MC        | 0.643           | -2.006 | 0.150  |
| 4      | C                | MC        | 1.090           | 0.081  | 0.358  |
| 10     | C                | MC        | 1.119           | 0.401  | 0.340  |
| 17     | C                | MC        | 1.068           | -2.087 | 0.240  |
| 18     | C                | MC        | 0.743           | -0.158 | 0.192  |
| 20     | C                | MC        | 0.773           | -0.974 | 0.248  |
| 27     | C                | MC        | 0.699           | -0.464 | 0.226  |
| 31     | C                | MC        | 0.908           | -0.003 | 0.163  |
| 33A    | U                | CR        | 0.754           | -1.673 |        |
| 33B    | U                | CR        | 0.783           | -3.028 | 1.183  |
| 34     | U                | MC        | 0.817           | -0.089 | 0.171  |
| 35     | C                | MC        | 0.846           | -1.278 | 0.249  |
| 36     | C                | MC        | 1.257           | -0.434 | 0.196  |
| 37     | C                | MC        | 0.734           | -1.775 | 0.157  |
| 38     | U                | MC        | 0.572           | -1.619 | 0.200  |
| 39     | U                | MC        | 0.626           | -1.485 | 0.170  |
| 40A    | C                | CR        | 0.668           | -1.600 |        |
| 40B    | C                | CR        | 0.768           | -0.418 | 1.092  |
| 41     | U                | MC        | 0.733           | -1.015 | 0.134  |
| 42     | C                | MC        | 0.987           | -0.129 | 0.142  |
| 43     | C                | MC        | 1.003           | -0.253 | 0.165  |
| 44     | U                | MC        | 0.782           | 0.684  | 0.171  |
| 45     | C                | MC        | 0.687           | -2.332 | 0.200  |
| 46     | U                | MC        | 1.143           | 0.536  | 0.155  |
| 47A    | U                | CR        | 1.812           | -0.936 |        |
| 47B    | U                | CR        | 1.236           | -1.095 | -0.008 |
| 48     | U                | MC        | 0.560           | -0.679 | 0.170  |
| 49     | C                | MC        | 0.569           | -1.541 | 0.102  |
| 50     | C                | MC        | 0.642           | -2.366 | 0.200  |
| 51     | U                | MC        | 0.534           | -1.093 | 0.170  |
| 52     | U                | MC        | 0.843           | -0.409 | 0.235  |
| 53     | C                | MC        | 0.875           | -1.290 | 0.337  |
| 54     | U                | MC        | 0.617           | -0.922 | 0.170  |
| 55     | C                | MC        | 0.574           | -2.756 | 0.200  |
| 56     | C                | MC        | 0.697           | 0.052  | 0.203  |

Table E3 (cont.)  
Item Parameters for Mathematics Grade 4 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |        |
|--------|------------------|-----------|-----------------|--------|--------|
|        |                  |           | a               | b      | c      |
| 58     | U                | MC        | 0.798           | -0.010 | 0.137  |
| 59     | U                | MC        | 0.765           | -1.839 | 0.200  |
| 60A    | U                | CR        | 1.465           | -0.553 |        |
| 60B    | U                | CR        | 1.278           | -0.323 | 0.530  |
| 61     | C                | MC        | 0.577           | -0.842 | 0.243  |
| 62     | C                | MC        | 0.784           | -1.902 | 0.111  |
| 63     | U                | MC        | 0.800           | -1.949 | 0.200  |
| 64     | U                | MC        | 0.699           | -1.499 | 0.170  |
| 65     | U                | MC        | 1.026           | -1.336 | 0.146  |
| 66     | C                | MC        | 0.907           | -1.053 | 0.104  |
| 67     | C                | MC        | 0.943           | -1.166 | 0.232  |
| 68A    | U                | CR        | 1.539           | 0.381  |        |
| 68B    | U                | CR        | 1.519           | -2.093 | -0.384 |
| 69     | C                | MC        | 0.573           | -0.966 | 0.200  |
| 70     | U                | MC        | 0.858           | 1.720  | 0.209  |
| 71     | U                | MC        | 0.596           | -0.660 | 0.170  |
| 72     | C                | MC        | 1.006           | 0.155  | 0.207  |
| 73     | C                | MC        | 0.762           | -1.563 | 0.161  |
| 74A    | U                | CR        | 1.962           | -0.897 |        |
| 74B    | U                | CR        | 1.728           | -2.832 | -0.252 |
| 75     | U                | MC        | 0.803           | 0.314  | 0.152  |
| 76     | U                | MC        | 0.979           | -1.486 | 0.170  |
| 77     | C                | MC        | 0.598           | -1.126 | 0.170  |
| 78     | C                | MC        | 0.887           | 0.053  | 0.275  |
| 79A    | U                | CR        | 1.175           | -1.327 |        |
| 79B    | U                | CR        | 0.970           | -1.494 | 1.222  |



Table E4  
Item Parameters for Mathematics Grade 4 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |       |
|--------|------------------|-----------|-----------------|--------|-------|
|        |                  |           | a               | b      | c     |
| 1      | C                | MC        | 0.540           | -2.132 | 0.150 |
| 2      | C                | MC        | 0.513           | -1.195 | 0.103 |
| 3      | C                | MC        | 0.643           | -2.006 | 0.150 |
| 4      | C                | MC        | 1.090           | 0.081  | 0.358 |
| 10     | C                | MC        | 1.119           | 0.401  | 0.340 |
| 17     | C                | MC        | 1.068           | -2.087 | 0.240 |
| 18     | C                | MC        | 0.743           | -0.158 | 0.192 |
| 20     | C                | MC        | 0.773           | -0.974 | 0.248 |
| 27     | C                | MC        | 0.699           | -0.464 | 0.226 |
| 31     | C                | MC        | 0.908           | -0.003 | 0.163 |
| 33A    | U                | CR        | 1.293           | -1.713 |       |
| 33B    | U                | CR        | 1.264           | -1.280 | 1.610 |
| 34     | C                | MC        | 0.846           | -1.278 | 0.249 |
| 35     | U                | MC        | 0.565           | -1.192 | 0.200 |
| 36     | U                | MC        | 0.818           | -0.580 | 0.261 |
| 37     | C                | MC        | 1.257           | -0.434 | 0.196 |
| 38     | U                | MC        | 0.576           | -0.407 | 0.200 |
| 39     | C                | MC        | 0.734           | -1.775 | 0.157 |
| 40A    | C                | CR        | 0.668           | -1.600 |       |
| 40B    | C                | CR        | 0.768           | -0.418 | 1.092 |
| 41     | C                | MC        | 0.987           | -0.129 | 0.142 |
| 42     | C                | MC        | 1.003           | -0.253 | 0.165 |
| 43     | U                | MC        | 0.528           | -1.248 | 0.200 |
| 44     | U                | MC        | 0.668           | -0.950 | 0.135 |
| 45     | U                | MC        | 0.748           | 0.377  | 0.173 |
| 46     | C                | MC        | 0.687           | -2.332 | 0.200 |
| 47A    | U                | CR        | 1.394           | -0.515 |       |
| 47B    | U                | CR        | 1.236           | -0.479 | 0.677 |
| 48     | U                | MC        | 1.158           | -0.233 | 0.168 |
| 49     | U                | MC        | 1.479           | 0.244  | 0.198 |
| 50     | C                | MC        | 0.569           | -1.541 | 0.102 |
| 51     | C                | MC        | 0.642           | -2.366 | 0.200 |
| 52     | U                | MC        | 0.778           | -1.840 | 0.200 |
| 53     | C                | MC        | 0.875           | -1.290 | 0.337 |
| 54     | C                | MC        | 0.574           | -2.756 | 0.200 |
| 55     | C                | MC        | 0.697           | 0.052  | 0.203 |
| 56     | U                | MC        | 0.917           | -0.438 | 0.435 |

Table E4 (cont.)  
Item Parameters for Mathematics Grade 4 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |        |
|--------|------------------|-----------|-----------------|--------|--------|
|        |                  |           | a               | b      | c      |
| 57     | U                | MC        | 1.064           | 0.059  | 0.153  |
| 58     | U                | MC        | 0.574           | -1.168 | 0.200  |
| 59     | U                | MC        | 1.190           | -0.460 | 0.222  |
| 60A    | U                | CR        | 1.006           | -4.073 |        |
| 60B    | U                | CR        | 0.658           | -0.419 | 0.173  |
| 61     | C                | MC        | 0.577           | -0.842 | 0.243  |
| 62     | C                | MC        | 0.784           | -1.902 | 0.111  |
| 63     | U                | MC        | 0.782           | -0.998 | 0.108  |
| 64     | U                | MC        | 0.863           | -0.203 | 0.121  |
| 65     | C                | MC        | 0.907           | -1.053 | 0.104  |
| 66     | U                | MC        | 0.708           | -0.075 | 0.099  |
| 67     | C                | MC        | 0.943           | -1.166 | 0.232  |
| 68A    | U                | CR        | 1.514           | -1.218 |        |
| 68B    | U                | CR        | 1.102           | -1.535 | 1.596  |
| 69     | C                | MC        | 0.573           | -0.966 | 0.200  |
| 70     | U                | MC        | 0.977           | 1.027  | 0.205  |
| 71     | U                | MC        | 1.057           | -1.233 | 0.191  |
| 72     | C                | MC        | 1.006           | 0.155  | 0.207  |
| 73     | C                | MC        | 0.762           | -1.563 | 0.161  |
| 74A    | U                | CR        | 1.765           | 1.367  |        |
| 74B    | U                | CR        | 1.404           | -0.800 | 1.434  |
| 75     | U                | MC        | 1.045           | 0.560  | 0.110  |
| 76     | U                | MC        | 0.763           | -0.568 | 0.267  |
| 77     | C                | MC        | 0.598           | -1.126 | 0.170  |
| 78     | C                | MC        | 0.887           | 0.053  | 0.275  |
| 79A    | U                | CR        | 1.389           | -0.304 |        |
| 79B    | U                | CR        | 0.867           | 0.533  | -0.933 |

Table E5  
Item Parameters for Mathematics Grade 5 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |       |       |
|--------|------------------|-----------|-----------------|--------|-------|-------|
|        |                  |           | a               | b      | c     | d     |
| 2      | C                | MC        | 0.825           | -1.109 | 0.150 |       |
| 4      | C                | MC        | 0.758           | -0.819 | 0.130 |       |
| 6      | C                | MC        | 0.760           | -1.455 | 0.213 |       |
| 8      | C                | MC        | 0.921           | -0.116 | 0.270 |       |
| 12     | C                | MC        | 0.927           | -0.917 | 0.234 |       |
| 13     | C                | MC        | 0.434           | -1.845 | 0.200 |       |
| 17     | C                | MC        | 0.466           | 1.030  | 0.498 |       |
| 23     | C                | MC        | 1.117           | -0.551 | 0.186 |       |
| 26     | C                | MC        | 0.913           | -0.239 | 0.106 |       |
| 27     | C                | MC        | 1.162           | -0.554 | 0.175 |       |
| 28     | C                | MC        | 1.041           | 0.102  | 0.398 |       |
| 31     | C                | MC        | 1.015           | -0.271 | 0.180 |       |
| 32     | C                | MC        | 0.862           | -1.766 | 0.162 |       |
| 33A    | U                | CR        | 1.122           | -0.480 |       |       |
| 33B    | U                | CR        | 1.101           | -1.320 | 3.137 |       |
| 34     | U                | MC        | 1.005           | -0.142 | 0.080 |       |
| 35     | U                | MC        | 1.072           | -1.376 | 0.157 |       |
| 36     | C                | MC        | 0.544           | 0.247  | 0.336 |       |
| 37     | C                | MC        | 0.722           | 0.521  | 0.427 |       |
| 38     | U                | MC        | 1.143           | 0.461  | 0.108 |       |
| 39     | C                | MC        | 0.881           | -0.763 | 0.218 |       |
| 40A    | U                | CR        | 1.118           | -1.893 |       |       |
| 40B    | U                | CR        | 1.027           | -3.773 | 1.008 | 2.470 |
| 41     | C                | MC        | 1.068           | -0.120 | 0.337 |       |
| 42     | C                | MC        | 0.678           | -1.476 | 0.200 |       |
| 43     | C                | MC        | 0.847           | 1.089  | 0.192 |       |
| 44     | C                | MC        | 0.816           | 0.908  | 0.176 |       |
| 45     | C                | MC        | 0.752           | -1.715 | 0.168 |       |
| 46     | C                | MC        | 0.720           | 0.392  | 0.260 |       |
| 47A    | U                | CR        | 1.476           | 0.564  |       |       |
| 47B    | U                | CR        | 1.395           | 0.119  | 1.329 |       |
| 48     | U                | MC        | 1.048           | -0.006 | 0.173 |       |
| 49     | C                | MC        | 0.595           | -1.760 | 0.200 |       |
| 50     | C                | MC        | 0.666           | 0.438  | 0.168 |       |
| 51     | U                | MC        | 0.485           | -1.157 | 0.200 |       |
| 52     | U                | MC        | 0.653           | 1.088  | 0.312 |       |
| 53     | U                | MC        | 0.648           | -1.556 | 0.200 |       |
| 54     | C                | MC        | 0.870           | 0.420  | 0.165 |       |
| 55     | C                | MC        | 0.752           | -1.428 | 0.200 |       |
| 56     | C                | MC        | 0.776           | -0.493 | 0.221 |       |

Table E5 (cont.)  
Item Parameters for Mathematics Grade 5 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |        |   |
|--------|------------------|-----------|-----------------|--------|--------|---|
|        |                  |           | a               | b      | c      | d |
| 57A    | U                | CR        | 1.524           | 0.459  |        |   |
| 57B    | U                | CR        | 1.292           | -1.973 | 1.358  |   |
| 58     | U                | MC        | 0.768           | -0.966 | 0.200  |   |
| 59     | U                | MC        | 0.531           | -3.353 | 0.200  |   |
| 60     | C                | MC        | 0.966           | -0.923 | 0.161  |   |
| 61     | C                | MC        | 0.833           | 0.045  | 0.170  |   |
| 62     | C                | MC        | 0.695           | -1.213 | 0.140  |   |
| 63A    | U                | CR        | 1.849           | -2.205 |        |   |
| 63B    | U                | CR        | 0.929           | -0.511 | -1.080 |   |
| 64A    | U                | CR        | 1.062           | -3.409 |        |   |
| 64B    | U                | CR        | 0.817           | -1.620 | 0.527  |   |
| 65     | U                | MC        | 0.655           | -2.192 | 0.200  |   |
| 66     | C                | MC        | 0.921           | -1.073 | 0.288  |   |
| 67     | C                | MC        | 1.156           | -0.341 | 0.251  |   |
| 68     | C                | MC        | 0.749           | -1.146 | 0.185  |   |
| 69     | C                | MC        | 0.903           | 0.058  | 0.168  |   |
| 70A    | C                | CR        | 1.560           | 0.718  |        |   |
| 70B    | C                | CR        | 1.269           | -0.872 | 2.635  |   |
| 71     | U                | MC        | 0.647           | -1.228 | 0.200  |   |
| 72     | C                | MC        | 0.930           | -0.396 | 0.115  |   |
| 73     | C                | MC        | 0.509           | -1.898 | 0.200  |   |
| 74     | C                | MC        | 0.751           | -1.505 | 0.200  |   |
| 75     | C                | MC        | 1.411           | 0.087  | 0.297  |   |
| 76A    | U                | CR        | 1.809           | 0.074  |        |   |
| 76B    | U                | CR        | 1.146           | 0.470  | -0.594 |   |

Table E6  
Item Parameters for Mathematics Grade 5 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |       |       |
|--------|------------------|-----------|-----------------|--------|-------|-------|
|        |                  |           | a               | b      | c     | d     |
| 2      | C                | MC        | 0.825           | -1.109 | 0.150 |       |
| 4      | C                | MC        | 0.758           | -0.819 | 0.130 |       |
| 6      | C                | MC        | 0.760           | -1.455 | 0.213 |       |
| 8      | C                | MC        | 0.921           | -0.116 | 0.270 |       |
| 12     | C                | MC        | 0.927           | -0.917 | 0.234 |       |
| 13     | C                | MC        | 0.434           | -1.845 | 0.200 |       |
| 17     | C                | MC        | 0.466           | 1.030  | 0.498 |       |
| 23     | C                | MC        | 1.117           | -0.551 | 0.186 |       |
| 26     | C                | MC        | 0.913           | -0.239 | 0.106 |       |
| 27     | C                | MC        | 1.162           | -0.554 | 0.175 |       |
| 28     | C                | MC        | 1.041           | 0.102  | 0.398 |       |
| 31     | C                | MC        | 1.015           | -0.271 | 0.180 |       |
| 32     | C                | MC        | 0.862           | -1.766 | 0.162 |       |
| 33A    | U                | CR        | 0.807           | -1.139 |       |       |
| 33B    | U                | CR        | 0.855           | -3.147 | 1.908 |       |
| 34     | U                | MC        | 1.139           | -0.619 | 0.090 |       |
| 35     | U                | MC        | 1.045           | -1.106 | 0.329 |       |
| 36     | C                | MC        | 0.722           | 0.521  | 0.427 |       |
| 37     | C                | MC        | 0.544           | 0.247  | 0.336 |       |
| 38     | C                | MC        | 0.881           | -0.763 | 0.218 |       |
| 39     | U                | MC        | 0.369           | 0.021  | 0.200 |       |
| 40A    | U                | CR        | 1.112           | -0.851 |       |       |
| 40B    | U                | CR        | 1.298           | -2.151 | 0.494 | 1.512 |
| 41     | C                | MC        | 1.068           | -0.120 | 0.337 |       |
| 42     | C                | MC        | 0.678           | -1.476 | 0.200 |       |
| 43     | C                | MC        | 0.847           | 1.089  | 0.192 |       |
| 44     | C                | MC        | 0.816           | 0.908  | 0.176 |       |
| 45     | C                | MC        | 0.752           | -1.715 | 0.168 |       |
| 46     | C                | MC        | 0.720           | 0.392  | 0.260 |       |
| 47A    | U                | CR        | 1.601           | 0.600  |       |       |
| 47B    | U                | CR        | 1.379           | -1.681 | 0.564 |       |
| 48     | U                | MC        | 0.917           | -0.003 | 0.297 |       |
| 49     | C                | MC        | 0.595           | -1.760 | 0.200 |       |
| 50     | C                | MC        | 0.666           | 0.438  | 0.168 |       |
| 51     | U                | MC        | 0.679           | 0.521  | 0.151 |       |
| 52     | U                | MC        | 0.838           | -0.002 | 0.165 |       |
| 53     | U                | MC        | 0.463           | -1.124 | 0.200 |       |
| 54     | U                | MC        | 0.651           | -1.555 | 0.200 |       |
| 55     | C                | MC        | 0.870           | 0.420  | 0.165 |       |
| 56     | U                | MC        | 1.003           | -0.069 | 0.146 |       |

Table E6 (cont.)  
Item Parameters for Mathematics Grade 5 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |        |   |
|--------|------------------|-----------|-----------------|--------|--------|---|
|        |                  |           | a               | b      | c      | d |
| 57A    | U                | CR        | 1.626           | 1.130  |        |   |
| 57B    | U                | CR        | 1.240           | -1.241 | 0.974  |   |
| 58     | C                | MC        | 0.966           | -0.923 | 0.161  |   |
| 59     | C                | MC        | 0.776           | -0.493 | 0.221  |   |
| 60     | C                | MC        | 0.752           | -1.428 | 0.200  |   |
| 61     | C                | MC        | 0.833           | 0.045  | 0.170  |   |
| 62     | C                | MC        | 0.695           | -1.213 | 0.140  |   |
| 63A    | U                | CR        | 0.981           | -2.133 |        |   |
| 63B    | U                | CR        | 1.011           | -3.660 | 1.716  |   |
| 64A    | U                | CR        | 1.202           | 0.708  |        |   |
| 64B    | U                | CR        | 1.102           | -0.011 | 3.180  |   |
| 65     | U                | MC        | 0.737           | -1.749 | 0.200  |   |
| 66     | C                | MC        | 0.921           | -1.073 | 0.288  |   |
| 67     | C                | MC        | 1.156           | -0.341 | 0.251  |   |
| 68     | C                | MC        | 0.749           | -1.146 | 0.185  |   |
| 69     | C                | MC        | 0.903           | 0.058  | 0.168  |   |
| 70A    | C                | CR        | 1.560           | 0.718  |        |   |
| 70B    | C                | CR        | 1.269           | -0.872 | 2.635  |   |
| 71     | U                | MC        | 0.599           | -1.277 | 0.200  |   |
| 72     | C                | MC        | 0.930           | -0.396 | 0.115  |   |
| 73     | C                | MC        | 0.509           | -1.898 | 0.200  |   |
| 74     | C                | MC        | 0.751           | -1.505 | 0.200  |   |
| 75     | C                | MC        | 1.411           | 0.087  | 0.297  |   |
| 76A    | U                | CR        | 1.782           | 0.157  |        |   |
| 76B    | U                | CR        | 1.122           | 0.442  | -0.443 |   |

Table E7  
Item Parameters for Mathematics Grade 6 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |       |       |
|--------|------------------|-----------|-----------------|--------|-------|-------|
|        |                  |           | a               | b      | c     | d     |
| 6      | C                | MC        | 0.824           | -0.853 | 0.111 |       |
| 13     | C                | MC        | 1.126           | -0.929 | 0.290 |       |
| 17     | C                | MC        | 0.784           | -0.960 | 0.183 |       |
| 18     | C                | MC        | 1.162           | -0.655 | 0.277 |       |
| 20     | C                | MC        | 1.425           | -0.458 | 0.205 |       |
| 32     | C                | MC        | 1.092           | 0.060  | 0.131 |       |
| 33     | U                | MC        | 0.890           | -0.889 | 0.332 |       |
| 34     | C                | MC        | 0.793           | 0.846  | 0.119 |       |
| 35     | C                | MC        | 1.243           | 0.280  | 0.400 |       |
| 36     | U                | MC        | 1.191           | -0.998 | 0.241 |       |
| 37     | C                | MC        | 1.452           | 0.103  | 0.099 |       |
| 38     | C                | MC        | 1.026           | -0.309 | 0.310 |       |
| 39     | U                | MC        | 0.679           | -0.549 | 0.132 |       |
| 40A    | U                | CR        | 1.699           | -0.349 |       |       |
| 40B    | U                | CR        | 1.583           | -0.937 | 0.821 | 4.505 |
| 41     | C                | MC        | 0.738           | -0.079 | 0.316 |       |
| 42     | C                | MC        | 0.719           | -0.026 | 0.147 |       |
| 43     | U                | MC        | 0.763           | -1.049 | 0.189 |       |
| 44     | U                | MC        | 0.874           | 0.411  | 0.219 |       |
| 45     | U                | MC        | 1.160           | -0.508 | 0.174 |       |
| 46     | C                | MC        | 1.714           | 0.992  | 0.340 |       |
| 47     | C                | MC        | 1.637           | 0.716  | 0.234 |       |
| 48     | U                | MC        | 1.380           | 0.589  | 0.155 |       |
| 49A    | U                | CR        | 1.491           | 0.132  |       |       |
| 49B    | U                | CR        | 1.174           | -0.026 | 0.938 |       |
| 50     | U                | MC        | 0.883           | 0.423  | 0.216 |       |
| 51     | U                | MC        | 0.937           | 0.019  | 0.208 |       |
| 52     | C                | MC        | 0.726           | 0.684  | 0.150 |       |
| 53     | C                | MC        | 1.232           | 1.008  | 0.247 |       |
| 54     | C                | MC        | 0.620           | 0.336  | 0.209 |       |
| 55     | U                | MC        | 1.905           | 0.981  | 0.102 |       |
| 56     | U                | MC        | 0.544           | -0.033 | 0.181 |       |
| 57     | U                | MC        | 1.255           | 0.056  | 0.184 |       |
| 58     | C                | MC        | 0.734           | -0.472 | 0.173 |       |
| 59     | C                | MC        | 1.558           | 0.572  | 0.232 |       |
| 60     | C                | MC        | 0.983           | 0.170  | 0.320 |       |
| 61     | U                | MC        | 1.511           | 0.206  | 0.194 |       |
| 62     | U                | MC        | 0.783           | -0.285 | 0.244 |       |
| 63A    | U                | CR        | 1.934           | 0.699  |       |       |
| 63B    | U                | CR        | 1.770           | 0.152  | 1.851 |       |

Table E7 (cont.)  
Item Parameters for Mathematics Grade 6 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |       |   |
|--------|------------------|-----------|-----------------|--------|-------|---|
|        |                  |           | a               | b      | c     | d |
| 64     | C                | MC        | 0.656           | -1.261 | 0.208 |   |
| 65     | C                | MC        | 1.010           | -1.418 | 0.149 |   |
| 66     | C                | MC        | 0.587           | -1.796 | 0.200 |   |
| 67     | C                | MC        | 0.879           | -0.092 | 0.190 |   |
| 68A    | U                | CR        | 1.733           | -1.682 |       |   |
| 68B    | U                | CR        | 0.713           | -1.588 | 0.668 |   |
| 69A    | C                | CR        | 0.820           | 0.486  |       |   |
| 69B    | C                | CR        | 1.246           | -0.925 | 0.262 |   |
| 70     | C                | MC        | 0.666           | -0.822 | 0.133 |   |
| 71     | C                | MC        | 0.689           | 0.179  | 0.139 |   |
| 72     | U                | MC        | 0.992           | -0.291 | 0.186 |   |
| 73     | U                | MC        | 0.835           | 0.953  | 0.142 |   |
| 74     | C                | MC        | 0.622           | 0.697  | 0.242 |   |
| 75A    | U                | CR        | 2.762           | -0.423 |       |   |
| 75B    | U                | CR        | 1.772           | -0.932 | 0.876 |   |
| 76     | C                | MC        | 1.175           | 0.399  | 0.180 |   |
| 77     | U                | MC        | 0.966           | -0.605 | 0.196 |   |
| 78     | U                | MC        | 0.600           | 0.115  | 0.165 |   |
| 79     | C                | MC        | 1.373           | -0.456 | 0.234 |   |
| 80     | U                | MC        | 1.045           | -0.066 | 0.198 |   |
| 81A    | U                | CR        | 1.593           | -0.290 |       |   |
| 81B    | U                | CR        | 1.588           | -1.782 | 1.684 |   |



Table E8  
Item Parameters for Mathematics Grade 6 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |       |       |
|--------|------------------|-----------|-----------------|--------|-------|-------|
|        |                  |           | a               | b      | c     | d     |
| 6      | C                | MC        | 0.824           | -0.853 | 0.111 |       |
| 13     | C                | MC        | 1.126           | -0.929 | 0.290 |       |
| 17     | C                | MC        | 0.784           | -0.960 | 0.183 |       |
| 18     | C                | MC        | 1.162           | -0.655 | 0.277 |       |
| 20     | C                | MC        | 1.425           | -0.458 | 0.205 |       |
| 32     | C                | MC        | 1.092           | 0.060  | 0.131 |       |
| 33     | U                | MC        | 0.609           | -2.310 | 0.200 |       |
| 34     | C                | MC        | 0.793           | 0.846  | 0.119 |       |
| 35     | U                | MC        | 1.015           | -1.028 | 0.210 |       |
| 36     | C                | MC        | 1.243           | 0.280  | 0.400 |       |
| 37     | C                | MC        | 1.452           | 0.103  | 0.099 |       |
| 38     | C                | MC        | 1.026           | -0.309 | 0.310 |       |
| 39     | U                | MC        | 0.982           | -0.430 | 0.276 |       |
| 40A    | U                | CR        | 1.676           | -1.025 |       |       |
| 40B    | U                | CR        | 1.376           | -1.576 | 0.113 | 1.635 |
| 41     | C                | MC        | 0.738           | -0.079 | 0.316 |       |
| 42     | C                | MC        | 0.719           | -0.026 | 0.147 |       |
| 43     | C                | MC        | 1.714           | 0.992  | 0.340 |       |
| 44     | U                | MC        | 1.204           | -0.575 | 0.183 |       |
| 45     | U                | MC        | 1.089           | -0.901 | 0.151 |       |
| 46     | U                | MC        | 1.141           | 0.392  | 0.140 |       |
| 47     | C                | MC        | 1.637           | 0.716  | 0.234 |       |
| 48     | U                | MC        | 0.860           | 1.250  | 0.142 |       |
| 49A    | U                | CR        | 1.618           | -0.601 |       |       |
| 49B    | U                | CR        | 1.364           | -0.750 | 0.363 |       |
| 50     | U                | MC        | 0.780           | -1.266 | 0.200 |       |
| 51     | U                | MC        | 1.595           | 0.588  | 0.148 |       |
| 52     | U                | MC        | 1.403           | 1.180  | 0.215 |       |
| 53     | C                | MC        | 1.232           | 1.008  | 0.247 |       |
| 54     | C                | MC        | 0.620           | 0.336  | 0.209 |       |
| 55     | C                | MC        | 0.726           | 0.684  | 0.150 |       |
| 56     | U                | MC        | 0.708           | -0.319 | 0.144 |       |
| 57     | U                | MC        | 1.837           | 1.380  | 0.218 |       |
| 58     | U                | MC        | 1.034           | -0.796 | 0.188 |       |
| 59     | C                | MC        | 0.734           | -0.472 | 0.173 |       |
| 60     | C                | MC        | 1.558           | 0.572  | 0.232 |       |
| 61     | C                | MC        | 0.656           | -1.261 | 0.208 |       |
| 62     | U                | MC        | 0.790           | 0.693  | 0.296 |       |
| 63A    | U                | CR        | 1.650           | 0.078  |       |       |
| 63B    | U                | CR        | 1.443           | -1.803 | 2.626 |       |

Table E8 (cont.)  
Item Parameters for Mathematics Grade 6 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |       |   |
|--------|------------------|-----------|-----------------|--------|-------|---|
|        |                  |           | a               | b      | c     | d |
| 64     | C                | MC        | 0.983           | 0.170  | 0.320 |   |
| 65     | C                | MC        | 0.587           | -1.796 | 0.200 |   |
| 66     | C                | MC        | 1.010           | -1.418 | 0.149 |   |
| 67     | C                | MC        | 0.879           | -0.092 | 0.190 |   |
| 68A    | U                | CR        | 1.998           | 0.663  |       |   |
| 68B    | U                | CR        | 1.014           | -1.030 | 1.321 |   |
| 69A    | C                | CR        | 0.820           | 0.486  |       |   |
| 69B    | C                | CR        | 1.246           | -0.925 | 0.262 |   |
| 70     | C                | MC        | 0.666           | -0.822 | 0.133 |   |
| 71     | C                | MC        | 0.689           | 0.179  | 0.139 |   |
| 72     | U                | MC        | 0.301           | 4.396  | 0.264 |   |
| 73     | U                | MC        | 0.722           | -1.162 | 0.196 |   |
| 74     | C                | MC        | 1.175           | 0.399  | 0.180 |   |
| 75A    | U                | CR        | 2.642           | 0.911  |       |   |
| 75B    | U                | CR        | 2.029           | -0.281 | 0.858 |   |
| 76     | C                | MC        | 0.622           | 0.697  | 0.242 |   |
| 77     | U                | MC        | 0.548           | -0.967 | 0.200 |   |
| 78     | U                | MC        | 1.113           | 1.726  | 0.184 |   |
| 79     | U                | MC        | 1.351           | -0.714 | 0.286 |   |
| 80     | C                | MC        | 1.373           | -0.456 | 0.234 |   |
| 81A    | U                | CR        | 1.894           | -0.518 |       |   |
| 81B    | U                | CR        | 1.654           | -1.167 | 2.328 |   |

Table E9  
Item Parameters for Mathematics Grade 7 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |        |       |
|--------|------------------|-----------|-----------------|--------|--------|-------|
|        |                  |           | a               | b      | c      | d     |
| 3      | C                | MC        | 1.218           | 0.544  | 0.267  |       |
| 9      | C                | MC        | 0.935           | -0.025 | 0.372  |       |
| 13     | C                | MC        | 1.139           | -0.405 | 0.080  |       |
| 15     | C                | MC        | 0.765           | -2.099 | 0.200  |       |
| 24     | C                | MC        | 1.265           | -0.088 | 0.144  |       |
| 32     | C                | MC        | 1.217           | 0.532  | 0.283  |       |
| 33A    | U                | CR        | 2.121           | 1.316  |        |       |
| 33B    | U                | CR        | 1.492           | -1.526 | 1.382  |       |
| 34     | U                | MC        | 1.248           | 0.542  | 0.146  |       |
| 35     | C                | MC        | 0.995           | 1.054  | 0.111  |       |
| 36     | C                | MC        | 1.281           | 0.487  | 0.209  |       |
| 37     | C                | MC        | 1.543           | -0.234 | 0.197  |       |
| 38     | U                | MC        | 0.840           | 0.021  | 0.117  |       |
| 39     | C                | MC        | 1.344           | -0.171 | 0.165  |       |
| 40     | C                | MC        | 1.235           | -0.691 | 0.113  |       |
| 41     | U                | MC        | 1.528           | 0.323  | 0.120  |       |
| 42     | C                | MC        | 0.576           | 0.118  | 0.339  |       |
| 43A    | U                | CR        | 1.715           | -1.466 |        |       |
| 43B    | U                | CR        | 1.108           | -1.225 | -1.013 |       |
| 44     | C                | MC        | 0.940           | -0.066 | 0.249  |       |
| 45     | C                | MC        | 1.267           | -0.019 | 0.207  |       |
| 46     | C                | MC        | 1.007           | -0.095 | 0.200  |       |
| 47     | U                | MC        | 1.393           | 0.463  | 0.361  |       |
| 48     | U                | MC        | 0.422           | 1.024  | 0.268  |       |
| 49     | C                | MC        | 1.688           | 0.374  | 0.193  |       |
| 50     | U                | MC        | 1.088           | 1.234  | 0.117  |       |
| 51     | C                | MC        | 1.828           | 1.055  | 0.224  |       |
| 52     | U                | MC        | 0.943           | -0.208 | 0.134  |       |
| 53A    | U                | CR        | 1.755           | 1.369  |        |       |
| 53B    | U                | CR        | 1.376           | 0.670  | 2.135  | 3.839 |
| 54     | C                | SPR       | 1.589           | -0.938 |        |       |
| 55     | U                | SPR       | 1.893           | -0.387 |        |       |
| 56     | C                | SPR       | 2.154           | 0.429  |        |       |
| 57     | U                | SPR       | 1.848           | 1.989  |        |       |
| 58     | C                | MC        | 1.105           | 0.260  | 0.194  |       |
| 59     | C                | MC        | 0.622           | -1.149 | 0.213  |       |
| 60     | C                | MC        | 1.298           | -0.719 | 0.112  |       |
| 61     | C                | MC        | 0.739           | -0.650 | 0.248  |       |
| 62     | U                | MC        | 0.928           | 1.394  | 0.166  |       |
| 63A    | U                | CR        | 1.215           | -1.715 |        |       |

Table E9 (cont.)  
Item Parameters for Mathematics Grade 7 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |        |       |
|--------|------------------|-----------|-----------------|--------|--------|-------|
|        |                  |           | a               | b      | c      | d     |
| 63B    | U                | CR        | 1.172           | -1.672 | -2.625 | 2.601 |
| 64     | U                | SPR       | 1.443           | -1.600 |        |       |
| 65     | U                | SPR       | 1.842           | 1.622  |        |       |
| 66     | U                | SPR       | 1.364           | 0.704  |        |       |
| 67     | C                | SPR       | 1.943           | 0.430  |        |       |
| 68A    | U                | CR        | 1.572           | 0.225  |        |       |
| 68B    | U                | CR        | 1.213           | -1.396 | -0.462 |       |
| 69     | C                | MC        | 1.190           | -0.187 | 0.217  |       |
| 70     | C                | MC        | 1.278           | 0.839  | 0.210  |       |
| 71     | C                | MC        | 1.678           | 0.259  | 0.145  |       |
| 72     | C                | MC        | 1.875           | 0.644  | 0.418  |       |
| 73     | C                | MC        | 0.674           | 0.119  | 0.194  |       |
| 74     | C                | MC        | 1.064           | 0.661  | 0.125  |       |
| 75     | U                | MC        | 0.724           | 1.721  | 0.282  |       |
| 76A    | U                | CR        | 1.959           | 1.473  |        |       |
| 76B    | U                | CR        | 1.306           | 0.247  | 0.650  |       |
| 77     | C                | SPR       | 1.355           | 1.471  |        |       |
| 78     | U                | SPR       | 1.798           | -0.389 |        |       |
| 79     | U                | SPR       | 1.343           | -0.530 |        |       |
| 80     | C                | SPR       | 1.810           | 1.408  |        |       |
| 81A    | C                | CR        | 1.836           | -0.308 |        |       |
| 81B    | C                | CR        | 1.348           | -1.389 | -0.471 | 0.434 |

Table E10  
Item Parameters for Mathematics Grade 7 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |        |       |
|--------|------------------|-----------|-----------------|--------|--------|-------|
|        |                  |           | a               | b      | c      | d     |
| 3      | C                | MC        | 1.218           | 0.544  | 0.267  |       |
| 9      | C                | MC        | 0.935           | -0.025 | 0.372  |       |
| 13     | C                | MC        | 1.139           | -0.405 | 0.080  |       |
| 15     | C                | MC        | 0.765           | -2.099 | 0.200  |       |
| 24     | C                | MC        | 1.265           | -0.088 | 0.144  |       |
| 32     | C                | MC        | 1.217           | 0.532  | 0.283  |       |
| 33A    | U                | CR        | 1.127           | 0.387  |        |       |
| 33B    | U                | CR        | 1.252           | 0.875  | 3.103  |       |
| 34     | C                | MC        | 1.281           | 0.487  | 0.209  |       |
| 35     | C                | MC        | 1.543           | -0.234 | 0.197  |       |
| 36     | C                | MC        | 0.995           | 1.054  | 0.111  |       |
| 37     | C                | MC        | 1.235           | -0.691 | 0.113  |       |
| 38     | C                | MC        | 0.940           | -0.066 | 0.249  |       |
| 39     | C                | MC        | 0.576           | 0.118  | 0.339  |       |
| 40     | U                | MC        | 1.451           | 0.891  | 0.175  |       |
| 41     | C                | MC        | 1.688           | 0.374  | 0.193  |       |
| 42     | U                | MC        | 1.458           | 1.308  | 0.077  |       |
| 43A    | U                | CR        | 1.959           | -0.203 |        |       |
| 43B    | U                | CR        | 1.585           | -1.128 | -0.433 |       |
| 44     | C                | MC        | 1.344           | -0.171 | 0.165  |       |
| 45     | U                | MC        | 1.657           | 0.099  | 0.351  |       |
| 46     | U                | MC        | 0.802           | -0.702 | 0.184  |       |
| 47     | C                | MC        | 1.267           | -0.019 | 0.207  |       |
| 48     | C                | MC        | 1.007           | -0.095 | 0.200  |       |
| 49     | U                | MC        | 1.059           | -0.593 | 0.086  |       |
| 50     | C                | MC        | 1.828           | 1.055  | 0.224  |       |
| 51     | U                | MC        | 0.799           | -0.710 | 0.131  |       |
| 52     | U                | MC        | 1.143           | 1.184  | 0.115  |       |
| 53A    | U                | CR        | 1.537           | -1.274 |        |       |
| 53B    | U                | CR        | 1.097           | -0.723 | -0.323 | 2.620 |
| 54     | C                | SPR       | 1.589           | -0.938 |        |       |
| 55     | U                | SPR       | 0.926           | 2.151  |        |       |
| 56     | C                | SPR       | 2.154           | 0.429  |        |       |
| 57     | U                | SPR       | 1.531           | -1.026 |        |       |
| 58     | C                | MC        | 1.105           | 0.260  | 0.194  |       |
| 59     | C                | MC        | 0.622           | -1.149 | 0.213  |       |
| 60     | C                | MC        | 1.298           | -0.719 | 0.112  |       |
| 61     | C                | MC        | 0.739           | -0.650 | 0.248  |       |
| 62     | C                | MC        | 0.674           | 0.119  | 0.194  |       |
| 63A    | U                | CR        | 1.116           | -0.678 |        |       |

Table E10 (cont.)  
Item Parameters for Mathematics Grade 7 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |        |       |
|--------|------------------|-----------|-----------------|--------|--------|-------|
|        |                  |           | a               | b      | c      | d     |
| 63B    | U                | CR        | 1.175           | -0.443 | -2.221 | 1.109 |
| 64     | C                | SPR       | 1.943           | 0.430  |        |       |
| 65     | U                | SPR       | 1.487           | -0.111 |        |       |
| 66     | U                | SPR       | 0.973           | 0.057  |        |       |
| 67     | U                | SPR       | 1.394           | -0.099 |        |       |
| 68A    | U                | CR        | 1.545           | 0.307  |        |       |
| 68B    | U                | CR        | 1.280           | 1.044  | 1.716  |       |
| 69     | C                | MC        | 1.190           | -0.187 | 0.217  |       |
| 70     | C                | MC        | 1.278           | 0.839  | 0.210  |       |
| 71     | C                | MC        | 1.678           | 0.259  | 0.145  |       |
| 72     | C                | MC        | 1.875           | 0.644  | 0.418  |       |
| 73     | U                | MC        | 1.124           | 0.939  | 0.262  |       |
| 74     | C                | MC        | 1.064           | 0.661  | 0.125  |       |
| 75     | U                | MC        | 0.752           | -0.720 | 0.224  |       |
| 76A    | U                | CR        | 1.834           | 1.503  |        |       |
| 76B    | U                | CR        | 1.294           | 0.179  | 0.735  |       |
| 77     | C                | SPR       | 1.355           | 1.471  |        |       |
| 78     | C                | SPR       | 1.810           | 1.408  |        |       |
| 79     | U                | SPR       | 1.646           | 1.075  |        |       |
| 80     | U                | SPR       | 2.291           | 1.349  |        |       |
| 81A    | C                | CR        | 1.836           | -0.308 |        |       |
| 81B    | C                | CR        | 1.348           | -1.389 | -0.471 | 0.434 |

Table E11  
Item Parameters for Mathematics Grade 8 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |       |       |
|--------|------------------|-----------|-----------------|--------|-------|-------|
|        |                  |           | a               | b      | c     | d     |
| 2      | C                | MC        | 1.381           | 0.472  | 0.390 |       |
| 3      | C                | MC        | 1.032           | 1.024  | 0.131 |       |
| 6      | C                | MC        | 1.116           | 0.057  | 0.354 |       |
| 7      | C                | MC        | 0.947           | -0.045 | 0.286 |       |
| 13     | C                | MC        | 0.518           | -2.714 | 0.200 |       |
| 16     | C                | MC        | 1.024           | -1.625 | 0.200 |       |
| 20     | C                | MC        | 0.918           | 0.735  | 0.182 |       |
| 21     | C                | MC        | 0.585           | -0.978 | 0.209 |       |
| 26     | C                | MC        | 0.501           | 1.307  | 0.180 |       |
| 27     | C                | MC        | 1.106           | -0.144 | 0.171 |       |
| 29     | C                | MC        | 0.586           | 0.263  | 0.245 |       |
| 32A    | U                | CR        | 2.516           | 0.440  |       |       |
| 32B    | U                | CR        | 1.574           | -1.824 | 0.107 |       |
| 33     | C                | MC        | 1.184           | 0.424  | 0.284 |       |
| 34     | C                | MC        | 0.724           | 1.528  | 0.063 |       |
| 35     | C                | MC        | 0.671           | -0.876 | 0.172 |       |
| 36     | C                | MC        | 1.615           | 0.628  | 0.292 |       |
| 37     | C                | MC        | 1.024           | 0.637  | 0.252 |       |
| 38     | C                | MC        | 1.919           | 1.121  | 0.441 |       |
| 39     | C                | MC        | 0.704           | -0.617 | 0.200 |       |
| 40A    | U                | CR        | 1.718           | 0.959  |       |       |
| 40B    | U                | CR        | 1.270           | 0.058  | 0.856 | 1.044 |
| 41     | C                | MC        | 0.645           | 0.158  | 0.153 |       |
| 42     | C                | MC        | 0.630           | -1.067 | 0.200 |       |
| 43     | U                | MC        | 1.620           | -0.284 | 0.182 |       |
| 44     | C                | MC        | 1.072           | 1.000  | 0.089 |       |
| 45     | C                | MC        | 1.060           | 0.179  | 0.284 |       |
| 46     | C                | MC        | 1.183           | 0.653  | 0.100 |       |
| 47A    | U                | CR        | 2.217           | 0.961  |       |       |
| 47B    | U                | CR        | 1.578           | -1.420 | 0.700 | 0.849 |
| 48     | U                | SPR       | 2.170           | 2.844  |       |       |
| 49     | U                | SPR       | 1.845           | -2.545 |       |       |
| 50     | U                | SPR       | 1.102           | -0.371 |       |       |
| 51     | U                | SPR       | 1.120           | 1.729  |       |       |
| 52     | U                | MC        | 0.601           | 0.144  | 0.136 |       |
| 53     | C                | MC        | 0.868           | 0.307  | 0.239 |       |
| 54     | C                | MC        | 1.242           | 1.110  | 0.257 |       |
| 55     | C                | MC        | 1.337           | 0.556  | 0.381 |       |
| 56     | C                | MC        | 1.426           | 0.816  | 0.261 |       |
| 57A    | U                | CR        | 2.147           | 2.246  |       |       |

Table E11 (cont.)  
Item Parameters for Mathematics Grade 8 Form 1

| Item # | Item Designation | Item Type | Item Parameters |        |        |       |
|--------|------------------|-----------|-----------------|--------|--------|-------|
|        |                  |           | a               | b      | c      | d     |
| 57B    | U                | CR        | 1.387           | 0.114  | 1.383  | 1.768 |
| 58     | U                | SPR       | 1.699           | 1.343  |        |       |
| 59     | U                | SPR       | 1.757           | -0.225 |        |       |
| 60     | C                | SPR       | 1.645           | 2.211  |        |       |
| 61     | C                | SPR       | 1.134           | -0.389 |        |       |
| 62A    | U                | CR        | 1.997           | -0.756 |        |       |
| 62B    | U                | CR        | 1.308           | -0.708 | -1.079 |       |
| 63     | C                | MC        | 0.658           | 1.014  | 0.207  |       |
| 64     | U                | MC        | 1.288           | 1.327  | 0.193  |       |
| 65     | C                | MC        | 1.294           | 1.175  | 0.107  |       |
| 66     | C                | MC        | 0.951           | 0.052  | 0.334  |       |
| 67     | C                | MC        | 0.771           | -0.061 | 0.066  |       |
| 68     | C                | MC        | 0.738           | 0.312  | 0.223  |       |
| 69     | U                | MC        | 0.847           | 2.326  | 0.058  |       |
| 70A    | U                | CR        | 1.339           | 2.307  |        |       |
| 70B    | U                | CR        | 1.350           | 0.600  | 5.010  |       |
| 71     | C                | SPR       | 1.846           | 0.634  |        |       |
| 72     | U                | SPR       | 1.257           | -1.041 |        |       |
| 73     | C                | SPR       | 1.345           | 0.359  |        |       |
| 74     | U                | SPR       | 2.242           | 0.365  |        |       |
| 75A    | U                | CR        | 1.416           | -1.552 |        |       |
| 75B    | U                | CR        | 1.015           | -2.022 | -0.695 |       |
| 76A    | C                | CR        | 2.299           | 1.649  |        |       |
| 76B    | C                | CR        | 1.668           | -0.076 | 1.824  |       |



Table E12  
Item Parameters for Mathematics Grade 8 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |       |       |
|--------|------------------|-----------|-----------------|--------|-------|-------|
|        |                  |           | a               | b      | c     | d     |
| 2      | C                | MC        | 1.381           | 0.472  | 0.390 |       |
| 3      | C                | MC        | 1.032           | 1.024  | 0.131 |       |
| 6      | C                | MC        | 1.116           | 0.057  | 0.354 |       |
| 7      | C                | MC        | 0.947           | -0.045 | 0.286 |       |
| 13     | C                | MC        | 0.518           | -2.714 | 0.200 |       |
| 16     | C                | MC        | 1.024           | -1.625 | 0.200 |       |
| 20     | C                | MC        | 0.918           | 0.735  | 0.182 |       |
| 21     | C                | MC        | 0.585           | -0.978 | 0.209 |       |
| 26     | C                | MC        | 0.501           | 1.307  | 0.180 |       |
| 27     | C                | MC        | 1.106           | -0.144 | 0.171 |       |
| 29     | C                | MC        | 0.586           | 0.263  | 0.245 |       |
| 32A    | U                | CR        | 1.729           | 0.827  |       |       |
| 32B    | U                | CR        | 1.269           | 1.151  | 0.975 |       |
| 33     | C                | MC        | 1.184           | 0.424  | 0.284 |       |
| 34     | C                | MC        | 0.724           | 1.528  | 0.063 |       |
| 35     | C                | MC        | 0.671           | -0.876 | 0.172 |       |
| 36     | C                | MC        | 0.645           | 0.158  | 0.153 |       |
| 37     | C                | MC        | 1.919           | 1.121  | 0.441 |       |
| 38     | C                | MC        | 0.704           | -0.617 | 0.200 |       |
| 39     | C                | MC        | 1.615           | 0.628  | 0.292 |       |
| 40A    | U                | CR        | 1.656           | 0.923  |       |       |
| 40B    | U                | CR        | 1.226           | 0.048  | 0.775 | 0.884 |
| 41     | C                | MC        | 1.024           | 0.637  | 0.252 |       |
| 42     | C                | MC        | 1.072           | 1.000  | 0.089 |       |
| 43     | C                | MC        | 1.183           | 0.653  | 0.100 |       |
| 44     | C                | MC        | 1.060           | 0.179  | 0.284 |       |
| 45     | U                | MC        | 1.031           | -0.668 | 0.235 |       |
| 46     | C                | MC        | 0.630           | -1.067 | 0.200 |       |
| 47A    | U                | CR        | 1.996           | 1.839  |       |       |
| 47B    | U                | CR        | 1.383           | -0.047 | 0.988 | 1.600 |
| 48     | U                | SPR       | 1.197           | -0.747 |       |       |
| 49     | U                | SPR       | 2.089           | 2.449  |       |       |
| 50     | U                | SPR       | 2.479           | 0.925  |       |       |
| 51     | U                | SPR       | 2.156           | -0.241 |       |       |
| 52     | C                | MC        | 0.658           | 1.014  | 0.207 |       |
| 53     | C                | MC        | 1.337           | 0.556  | 0.381 |       |
| 54     | C                | MC        | 0.868           | 0.307  | 0.239 |       |
| 55     | C                | MC        | 1.426           | 0.816  | 0.261 |       |
| 56     | C                | MC        | 1.242           | 1.110  | 0.257 |       |
| 57A    | U                | CR        | 1.679           | -0.450 |       |       |

Table E12 (cont.)  
Item Parameters for Mathematics Grade 8 Form 2

| Item # | Item Designation | Item Type | Item Parameters |        |        |       |
|--------|------------------|-----------|-----------------|--------|--------|-------|
|        |                  |           | a               | b      | c      | d     |
| 57B    | U                | CR        | 1.093           | -1.583 | 0.626  | 1.901 |
| 58     | U                | SPR       | 1.458           | 1.412  |        |       |
| 59     | C                | SPR       | 1.645           | 2.211  |        |       |
| 60     | U                | SPR       | 1.194           | -0.123 |        |       |
| 61     | C                | SPR       | 1.134           | -0.389 |        |       |
| 62A    | U                | CR        | 2.139           | 1.204  |        |       |
| 62B    | U                | CR        | 1.281           | -0.032 | -0.069 |       |
| 63     | U                | MC        | 1.321           | 1.056  | 0.312  |       |
| 64     | C                | MC        | 1.294           | 1.175  | 0.107  |       |
| 65     | U                | MC        | 1.180           | 0.881  | 0.237  |       |
| 66     | C                | MC        | 0.771           | -0.061 | 0.066  |       |
| 67     | C                | MC        | 0.951           | 0.052  | 0.334  |       |
| 68     | U                | MC        | 0.786           | -0.097 | 0.106  |       |
| 69     | C                | MC        | 0.738           | 0.312  | 0.223  |       |
| 70A    | U                | CR        | 1.274           | 1.281  |        |       |
| 70B    | U                | CR        | 1.472           | -2.234 | 4.216  |       |
| 71     | U                | SPR       | 1.076           | -0.252 |        |       |
| 72     | C                | SPR       | 1.846           | 0.634  |        |       |
| 73     | U                | SPR       | 1.640           | 0.373  |        |       |
| 74     | C                | SPR       | 1.345           | 0.359  |        |       |
| 75A    | U                | CR        | 2.129           | 1.469  |        |       |
| 75B    | U                | CR        | 1.458           | -1.438 | 1.157  |       |
| 76A    | C                | CR        | 2.299           | 1.649  |        |       |
| 76B    | C                | CR        | 1.668           | -0.076 | 1.824  |       |

Table E13  
Item Parameters for Mathematics Grade 3 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |       |
|------|-------------|-----------|-----------------|--------|-------|
|      |             |           | a               | b      | c     |
| A    | 78A         | CR        | 0.921           | -1.426 |       |
| A    | 78B         | CR        | 0.884           | -1.647 | 2.036 |
| A    | 79          | MC        | 0.741           | -1.266 | 0.200 |
| A    | 80          | MC        | 1.264           | -1.367 | 0.223 |
| A    | 81          | MC        | 0.858           | -1.452 | 0.200 |
| A    | 82          | MC        | 0.785           | -0.405 | 0.313 |
| A    | 83          | MC        | 1.280           | 0.063  | 0.232 |
| A    | 84          | MC        | 1.286           | -0.406 | 0.350 |
| A    | 85          | MC        | 0.844           | -1.198 | 0.085 |
| A    | 86A         | CR        | 0.875           | -2.251 |       |
| A    | 86B         | CR        | 1.198           | -0.512 | 2.361 |
| A    | 87          | MC        | 0.661           | -2.037 | 0.200 |
| A    | 88          | MC        | 0.515           | -1.378 | 0.200 |
| A    | 89          | MC        | 1.095           | -0.909 | 0.350 |
| A    | 90          | MC        | 0.661           | -0.411 | 0.000 |
| A    | 91          | MC        | 0.990           | -1.087 | 0.214 |
| A    | 92          | MC        | 1.418           | 0.023  | 0.162 |
| A    | 93          | MC        | 1.024           | 0.785  | 0.297 |
| B    | 78A         | CR        | 1.085           | 0.071  |       |
| B    | 78B         | CR        | 1.316           | -0.856 | 2.537 |
| B    | 79          | MC        | 0.690           | 0.315  | 0.022 |
| B    | 80          | MC        | 0.620           | -2.239 | 0.200 |
| B    | 81          | MC        | 0.837           | -1.675 | 0.200 |
| B    | 82          | MC        | 1.045           | -1.913 | 0.000 |
| B    | 83          | MC        | 0.784           | -1.384 | 0.200 |
| B    | 84          | MC        | 0.625           | -1.094 | 0.200 |
| B    | 85          | MC        | 0.446           | -1.316 | 0.200 |
| B    | 86A         | CR        | 1.239           | -0.455 |       |
| B    | 86B         | CR        | 1.164           | -0.764 | 0.139 |
| B    | 87          | MC        | 0.815           | -0.175 | 0.389 |
| B    | 88          | MC        | 1.476           | -1.544 | 0.205 |
| B    | 89          | MC        | 0.733           | -0.545 | 0.356 |
| B    | 90          | MC        | 0.726           | -0.554 | 0.431 |
| B    | 91          | MC        | 0.504           | 0.110  | 0.054 |
| B    | 92          | MC        | 0.725           | -0.858 | 0.200 |
| B    | 93          | MC        | 0.919           | -0.439 | 0.109 |
| C    | 78A         | CR        | 1.333           | 0.344  |       |
| C    | 78B         | CR        | 1.268           | -0.110 | 3.192 |
| C    | 79          | MC        | 1.471           | -2.204 | 0.200 |
| C    | 80          | MC        | 0.651           | -0.246 | 0.267 |

Table E13 (cont.)  
Item Parameters for Mathematics Grade 3 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |       |
|------|-------------|-----------|-----------------|--------|-------|
|      |             |           | a               | b      | c     |
| C    | 81          | MC        | 0.508           | -1.356 | 0.200 |
| C    | 82          | MC        | 1.042           | -2.338 | 0.200 |
| C    | 83          | MC        | 1.320           | 0.003  | 0.098 |
| C    | 84          | MC        | 1.019           | 1.115  | 0.142 |
| C    | 85          | MC        | 0.699           | 0.719  | 0.374 |
| C    | 86A         | CR        | 1.171           | -0.507 |       |
| C    | 86B         | CR        | 0.878           | -1.533 | 2.360 |
| C    | 87          | MC        | 0.849           | 1.127  | 0.226 |
| C    | 88          | MC        | 0.644           | -1.786 | 0.200 |
| C    | 89          | MC        | 1.547           | -0.092 | 0.148 |
| C    | 90          | MC        | 0.661           | 0.928  | 0.156 |
| C    | 91          | MC        | 1.292           | -1.249 | 0.280 |
| C    | 92          | MC        | 1.117           | -0.692 | 0.025 |
| C    | 93          | MC        | 1.156           | -0.139 | 0.328 |
| D    | 78A         | CR        | 1.024           | -1.596 |       |
| D    | 78B         | CR        | 1.418           | -2.662 | 3.634 |
| D    | 79          | MC        | 1.096           | -1.801 | 0.200 |
| D    | 80          | MC        | 0.754           | 0.570  | 0.198 |
| D    | 81          | MC        | 0.786           | 0.747  | 0.124 |
| D    | 82          | MC        | 0.964           | -1.909 | 0.200 |
| D    | 83          | MC        | 0.614           | -0.898 | 0.059 |
| D    | 84          | MC        | 0.628           | -2.474 | 0.200 |
| D    | 85          | MC        | 1.007           | 0.423  | 0.178 |
| D    | 87          | MC        | 1.096           | -0.508 | 0.194 |
| D    | 88          | MC        | 0.613           | 0.587  | 0.170 |
| D    | 89          | MC        | 0.800           | -0.857 | 0.200 |
| D    | 90          | MC        | 0.786           | -2.458 | 0.200 |
| D    | 91          | MC        | 0.449           | 0.625  | 0.142 |
| D    | 92          | MC        | 0.421           | -1.196 | 0.000 |
| D    | 93          | MC        | 0.580           | -1.525 | 0.000 |
| E    | 78A         | CR        | 0.825           | 0.897  |       |
| E    | 78B         | CR        | 0.823           | -1.053 | 3.269 |
| E    | 79          | MC        | 0.652           | -1.067 | 0.054 |
| E    | 80          | MC        | 0.778           | 2.438  | 0.223 |
| E    | 81          | MC        | 0.813           | -2.164 | 0.200 |
| E    | 82          | MC        | 0.774           | 0.768  | 0.288 |
| E    | 83          | MC        | 1.175           | -0.003 | 0.188 |
| E    | 84          | MC        | 0.621           | 0.457  | 0.328 |
| E    | 85          | MC        | 0.795           | -1.370 | 0.200 |
| E    | 86A         | CR        | 1.704           | 1.153  |       |

Table E13 (cont.)  
Item Parameters for Mathematics Grade 3 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |       |
|------|-------------|-----------|-----------------|--------|-------|
|      |             |           | a               | b      | c     |
| E    | 86B         | CR        | 1.455           | 0.746  | 2.485 |
| E    | 87          | MC        | 0.911           | -1.264 | 0.176 |
| E    | 88          | MC        | 0.898           | -1.115 | 0.144 |
| E    | 89          | MC        | 1.241           | -0.029 | 0.260 |
| E    | 90          | MC        | 1.118           | -1.150 | 0.244 |
| E    | 91          | MC        | 0.245           | -4.405 | 0.200 |
| E    | 92          | MC        | 0.438           | -2.339 | 0.200 |
| E    | 93          | MC        | 1.319           | -0.622 | 0.259 |

Table E14  
Item Parameters for Mathematics Grade 4 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |        |
|------|-------------|-----------|-----------------|--------|--------|
|      |             |           | a               | b      | c      |
| A    | 80A         | CR        | 1.065           | 1.484  |        |
| A    | 80B         | CR        | 0.943           | -0.753 | 1.219  |
| A    | 81          | MC        | 0.882           | -1.051 | 0.137  |
| A    | 82          | MC        | 1.912           | -0.326 | 0.190  |
| A    | 83          | MC        | 0.456           | -1.411 | 0.200  |
| A    | 84          | MC        | 0.607           | -0.622 | 0.161  |
| A    | 85          | MC        | 0.547           | -1.077 | 0.200  |
| A    | 86A         | CR        | 1.639           | 1.533  |        |
| A    | 86B         | CR        | 1.564           | -0.922 | 0.451  |
| A    | 87          | MC        | 0.818           | 0.138  | 0.195  |
| A    | 88          | MC        | 0.768           | -1.725 | 0.200  |
| A    | 89          | MC        | 0.758           | -0.282 | 0.191  |
| A    | 90          | MC        | 0.934           | -1.613 | 0.200  |
| A    | 91          | MC        | 0.836           | -1.594 | 0.200  |
| A    | 92          | MC        | 1.137           | -0.764 | 0.150  |
| A    | 93          | MC        | 1.083           | -0.690 | 0.382  |
| A    | 94          | MC        | 1.043           | 0.146  | 0.173  |
| A    | 95          | MC        | 0.743           | -1.125 | 0.164  |
| B    | 80A         | CR        | 1.746           | 0.071  |        |
| B    | 80B         | CR        | 1.484           | -0.984 | 0.679  |
| B    | 81          | MC        | 0.575           | -2.326 | 0.200  |
| B    | 82          | MC        | 0.541           | -0.432 | 0.190  |
| B    | 83          | MC        | 1.046           | 0.219  | 0.482  |
| B    | 84          | MC        | 0.562           | -0.973 | 0.175  |
| B    | 85          | MC        | 0.572           | -1.139 | 0.200  |
| B    | 86A         | CR        | 1.663           | -1.735 |        |
| B    | 86B         | CR        | 1.209           | -0.883 | -1.011 |
| B    | 87          | MC        | 0.686           | -0.072 | 0.333  |
| B    | 88          | MC        | 1.004           | 0.673  | 0.370  |
| B    | 89          | MC        | 0.599           | -1.343 | 0.200  |
| B    | 90          | MC        | 0.499           | -0.996 | 0.183  |
| B    | 91          | MC        | 0.615           | 1.220  | 0.168  |
| B    | 92          | MC        | 1.071           | 0.101  | 0.192  |
| B    | 93          | MC        | 0.853           | -1.794 | 0.200  |
| B    | 94          | MC        | 0.777           | -0.226 | 0.259  |
| B    | 95          | MC        | 1.267           | -0.690 | 0.187  |
| C    | 80A         | CR        | 0.952           | -1.855 |        |
| C    | 80B         | CR        | 0.850           | -0.586 | 1.526  |
| C    | 81          | MC        | 0.788           | -0.619 | 0.201  |
| C    | 84          | MC        | 0.677           | -3.308 | 0.200  |

Table E14 (cont.)  
Item Parameters for Mathematics Grade 4 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |        |
|------|-------------|-----------|-----------------|--------|--------|
|      |             |           | a               | b      | c      |
| C    | 85          | MC        | 1.024           | 0.627  | 0.398  |
| C    | 86A         | CR        | 1.081           | -3.661 |        |
| C    | 86B         | CR        | 0.645           | -2.046 | -0.558 |
| C    | 87          | MC        | 0.802           | -0.473 | 0.139  |
| C    | 88          | MC        | 0.922           | -0.027 | 0.182  |
| C    | 89          | MC        | 0.975           | -1.404 | 0.186  |
| C    | 90          | MC        | 1.178           | -0.202 | 0.189  |
| C    | 91          | MC        | 1.142           | -0.736 | 0.242  |
| C    | 92          | MC        | 0.810           | 0.265  | 0.208  |
| C    | 93          | MC        | 0.589           | -1.376 | 0.200  |
| C    | 94          | MC        | 0.818           | -2.413 | 0.200  |
| C    | 95          | MC        | 1.407           | 0.137  | 0.216  |
| D    | 80A         | CR        | 1.594           | 0.431  |        |
| D    | 80B         | CR        | 1.399           | -0.443 | 2.947  |
| D    | 81          | MC        | 0.732           | -1.233 | 0.200  |
| D    | 82          | MC        | 0.952           | -2.931 | 0.200  |
| D    | 83          | MC        | 0.432           | 0.549  | 0.200  |
| D    | 84          | MC        | 0.743           | -1.537 | 0.200  |
| D    | 85          | MC        | 0.683           | -0.546 | 0.152  |
| D    | 86A         | CR        | 1.489           | -3.027 |        |
| D    | 86B         | CR        | 1.127           | -2.568 | 1.322  |
| D    | 87          | MC        | 0.917           | -0.200 | 0.171  |
| D    | 88          | MC        | 0.534           | -1.892 | 0.200  |
| D    | 89          | MC        | 0.949           | -0.317 | 0.168  |
| D    | 90          | MC        | 1.048           | -0.420 | 0.232  |
| D    | 91          | MC        | 0.900           | -2.462 | 0.200  |
| D    | 92          | MC        | 0.534           | -1.204 | 0.200  |
| D    | 93          | MC        | 0.941           | -0.088 | 0.216  |
| D    | 94          | MC        | 1.109           | -0.719 | 0.259  |
| D    | 95          | MC        | 0.713           | -0.533 | 0.210  |
| E    | 80A         | CR        | 1.202           | -0.062 |        |
| E    | 80B         | CR        | 1.077           | -0.706 | 0.201  |
| E    | 81          | MC        | 0.506           | -1.744 | 0.200  |
| E    | 82          | MC        | 0.717           | -1.103 | 0.200  |
| E    | 83          | MC        | 0.795           | -3.429 | 0.200  |
| E    | 84          | MC        | 1.077           | -0.152 | 0.138  |
| E    | 85          | MC        | 0.568           | -2.176 | 0.200  |
| E    | 86A         | CR        | 1.184           | 0.233  |        |
| E    | 86B         | CR        | 1.084           | -1.616 | 1.631  |
| E    | 87          | MC        | 0.648           | -2.142 | 0.200  |

Table E14 (cont.)  
Item Parameters for Mathematics Grade 4 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |       |
|------|-------------|-----------|-----------------|--------|-------|
|      |             |           | a               | b      | c     |
| E    | 88          | MC        | 1.092           | 0.181  | 0.237 |
| E    | 89          | MC        | 1.165           | 0.287  | 0.151 |
| E    | 90          | MC        | 1.305           | -0.064 | 0.140 |
| E    | 91          | MC        | 1.047           | -0.363 | 0.275 |
| E    | 92          | MC        | 0.568           | -2.503 | 0.200 |
| E    | 93          | MC        | 0.494           | -1.237 | 0.200 |
| E    | 94          | MC        | 0.612           | -1.198 | 0.200 |
| E    | 95          | MC        | 0.633           | -1.556 | 0.193 |



Table E15  
Item Parameters for Mathematics Grade 5 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |       |   |
|------|-------------|-----------|-----------------|--------|-------|---|
|      |             |           | a               | b      | c     | d |
| A    | 77A         | CR        | 1.580           | -0.887 |       |   |
| A    | 77B         | CR        | 1.107           | -0.935 | 1.243 |   |
| A    | 78          | MC        | 0.736           | 0.283  | 0.103 |   |
| A    | 79          | MC        | 0.698           | -1.712 | 0.200 |   |
| A    | 80          | MC        | 1.369           | -0.484 | 0.163 |   |
| A    | 81          | MC        | 0.829           | -0.915 | 0.218 |   |
| A    | 82          | MC        | 1.072           | -0.348 | 0.293 |   |
| A    | 83          | MC        | 0.797           | -0.354 | 0.182 |   |
| A    | 84          | MC        | 1.236           | 1.683  | 0.174 |   |
| A    | 85          | MC        | 0.609           | 1.159  | 0.185 |   |
| A    | 86          | MC        | 1.163           | 0.071  | 0.292 |   |
| A    | 87A         | CR        | 2.509           | 0.566  |       |   |
| A    | 87B         | CR        | 1.640           | 0.321  | 0.825 |   |
| A    | 88          | MC        | 0.897           | -0.189 | 0.216 |   |
| A    | 89          | MC        | 1.497           | 0.230  | 0.155 |   |
| A    | 90          | MC        | 0.613           | -1.860 | 0.200 |   |
| A    | 91          | MC        | 0.772           | -0.850 | 0.202 |   |
| A    | 92          | MC        | 1.401           | 0.987  | 0.185 |   |
| A    | 93          | MC        | 0.848           | 1.079  | 0.243 |   |
| A    | 94          | MC        | 0.809           | 0.393  | 0.228 |   |
| B    | 78          | MC        | 1.042           | -0.164 | 0.133 |   |
| B    | 79          | MC        | 1.000           | -1.637 | 0.264 |   |
| B    | 80          | MC        | 0.489           | 0.017  | 0.200 |   |
| B    | 81          | MC        | 1.101           | 0.398  | 0.241 |   |
| B    | 82          | MC        | 1.052           | -0.346 | 0.198 |   |
| B    | 83          | MC        | 0.716           | 1.645  | 0.256 |   |
| B    | 84          | MC        | 0.916           | -1.071 | 0.166 |   |
| B    | 85          | MC        | 0.727           | -0.706 | 0.358 |   |
| B    | 86          | MC        | 0.618           | 1.209  | 0.111 |   |
| B    | 87A         | CR        | 1.620           | 0.779  |       |   |
| B    | 87B         | CR        | 1.052           | -0.880 | 1.880 |   |
| B    | 88          | MC        | 0.389           | 1.443  | 0.200 |   |
| B    | 89          | MC        | 0.851           | 0.399  | 0.255 |   |
| B    | 90          | MC        | 0.897           | -0.656 | 0.232 |   |
| B    | 91          | MC        | 0.573           | -1.946 | 0.200 |   |
| B    | 92          | MC        | 0.475           | -1.009 | 0.200 |   |
| B    | 93          | MC        | 0.737           | -0.324 | 0.186 |   |
| B    | 94          | MC        | 0.949           | 1.113  | 0.220 |   |
| C    | 77A         | CR        | 1.559           | -1.887 |       |   |
| C    | 77B         | CR        | 1.184           | -1.416 | 1.776 |   |

Table E15 (cont.)  
Item Parameters for Mathematics Grade 5 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |        |       |
|------|-------------|-----------|-----------------|--------|--------|-------|
|      |             |           | a               | b      | c      | d     |
| C    | 78          | MC        | 0.949           | -0.134 | 0.130  |       |
| C    | 79          | MC        | 0.645           | -1.152 | 0.200  |       |
| C    | 80          | MC        | 0.808           | -1.510 | 0.200  |       |
| C    | 81          | MC        | 0.681           | -1.180 | 0.200  |       |
| C    | 82          | MC        | 0.446           | -0.972 | 0.200  |       |
| C    | 83          | MC        | 1.533           | 0.213  | 0.174  |       |
| C    | 84          | MC        | 0.487           | -1.438 | 0.200  |       |
| C    | 85          | MC        | 0.720           | -0.854 | 0.200  |       |
| C    | 86          | MC        | 1.035           | 0.352  | 0.218  |       |
| C    | 87A         | CR        | 2.116           | 1.405  |        |       |
| C    | 87B         | CR        | 1.613           | -0.314 | 1.642  |       |
| C    | 88          | MC        | 0.926           | -0.872 | 0.216  |       |
| C    | 89          | MC        | 0.942           | 0.257  | 0.270  |       |
| C    | 90          | MC        | 1.250           | 0.573  | 0.166  |       |
| C    | 91          | MC        | 0.630           | 0.548  | 0.166  |       |
| C    | 92          | MC        | 0.897           | 0.121  | 0.102  |       |
| C    | 93          | MC        | 1.647           | 0.536  | 0.215  |       |
| C    | 94          | MC        | 0.632           | -0.185 | 0.200  |       |
| D    | 77A         | CR        | 1.149           | -1.070 |        |       |
| D    | 77B         | CR        | 1.030           | -1.146 | 0.244  | 2.303 |
| D    | 78          | MC        | 0.431           | -1.371 | 0.200  |       |
| D    | 79          | MC        | 0.975           | -0.300 | 0.193  |       |
| D    | 80          | MC        | 1.137           | -0.931 | 0.119  |       |
| D    | 81          | MC        | 1.062           | 0.415  | 0.269  |       |
| D    | 82          | MC        | 0.848           | -0.578 | 0.144  |       |
| D    | 83A         | CR        | 1.509           | 1.380  |        |       |
| D    | 83B         | CR        | 0.776           | 1.481  | -0.545 |       |
| D    | 84          | MC        | 0.545           | -0.494 | 0.200  |       |
| D    | 85          | MC        | 1.126           | 0.491  | 0.281  |       |
| D    | 86          | MC        | 0.932           | 1.356  | 0.278  |       |
| D    | 87          | MC        | 0.956           | -0.353 | 0.195  |       |
| D    | 88          | MC        | 0.500           | 0.605  | 0.212  |       |
| D    | 89          | MC        | 0.502           | 0.055  | 0.202  |       |
| D    | 90          | MC        | 0.575           | -1.953 | 0.200  |       |
| E    | 78          | MC        | 0.840           | 0.539  | 0.199  |       |
| E    | 79          | MC        | 0.588           | -2.537 | 0.200  |       |
| E    | 80          | MC        | 0.916           | -0.762 | 0.304  |       |
| E    | 81          | MC        | 0.782           | 0.635  | 0.129  |       |
| E    | 82          | MC        | 0.684           | -0.016 | 0.194  |       |
| E    | 83A         | CR        | 1.087           | -1.421 |        |       |

Table E15 (cont.)  
Item Parameters for Mathematics Grade 5 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |        |   |
|------|-------------|-----------|-----------------|--------|--------|---|
|      |             |           | a               | b      | c      | d |
| E    | 83B         | CR        | 0.703           | 0.435  | -2.861 |   |
| E    | 84          | MC        | 0.933           | -0.013 | 0.080  |   |
| E    | 85          | MC        | 0.811           | -0.538 | 0.263  |   |
| E    | 86          | MC        | 0.596           | -1.575 | 0.200  |   |
| E    | 87          | MC        | 0.854           | 0.135  | 0.193  |   |
| E    | 88          | MC        | 0.719           | -1.584 | 0.200  |   |
| E    | 89          | MC        | 0.805           | -1.179 | 0.200  |   |
| E    | 90          | MC        | 0.495           | -3.154 | 0.200  |   |

Table E16  
Item Parameters for Mathematics Grade 6 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |       |   |
|------|-------------|-----------|-----------------|--------|-------|---|
|      |             |           | a               | b      | c     | d |
| A    | 82A         | CR        | 1.588           | 2.167  |       |   |
| A    | 82B         | CR        | 1.257           | -0.495 | 3.595 |   |
| A    | 83          | MC        | 1.097           | 0.135  | 0.207 |   |
| A    | 84          | MC        | 0.913           | 0.618  | 0.092 |   |
| A    | 85          | MC        | 1.243           | 0.127  | 0.225 |   |
| A    | 86          | MC        | 0.866           | -0.529 | 0.373 |   |
| A    | 87A         | CR        | 2.548           | 1.250  |       |   |
| A    | 87B         | CR        | 1.541           | -0.901 | 0.832 |   |
| A    | 88          | MC        | 1.152           | -1.337 | 0.199 |   |
| A    | 89          | MC        | 0.752           | 0.288  | 0.215 |   |
| A    | 90          | MC        | 1.604           | 0.299  | 0.181 |   |
| A    | 91          | MC        | 0.985           | 1.055  | 0.118 |   |
| A    | 92          | MC        | 1.116           | 0.131  | 0.180 |   |
| A    | 93A         | CR        | 1.099           | -0.569 |       |   |
| A    | 93B         | CR        | 1.158           | -1.027 | 1.826 |   |
| B    | 82A         | CR        | 2.536           | 2.248  |       |   |
| B    | 82B         | CR        | 1.902           | 0.321  | 1.857 |   |
| B    | 83          | MC        | 0.756           | 2.110  | 0.210 |   |
| B    | 84          | MC        | 2.000           | 0.841  | 0.144 |   |
| B    | 85          | MC        | 0.728           | -0.102 | 0.229 |   |
| B    | 86          | MC        | 0.804           | 0.400  | 0.182 |   |
| B    | 88          | MC        | 0.672           | -0.174 | 0.258 |   |
| B    | 89          | MC        | 0.679           | -1.092 | 0.200 |   |
| B    | 90          | MC        | 1.112           | 0.394  | 0.282 |   |
| B    | 91          | MC        | 1.380           | 0.486  | 0.213 |   |
| B    | 92          | MC        | 1.190           | 0.709  | 0.186 |   |
| B    | 93A         | CR        | 1.328           | 0.462  |       |   |
| B    | 93B         | CR        | 1.143           | -1.343 | 2.510 |   |
| C    | 83          | MC        | 1.125           | 0.355  | 0.252 |   |
| C    | 84          | MC        | 1.825           | 0.860  | 0.424 |   |
| C    | 85          | MC        | 1.202           | -0.310 | 0.161 |   |
| C    | 86          | MC        | 1.171           | 0.369  | 0.201 |   |
| C    | 87          | MC        | 0.779           | 0.528  | 0.208 |   |
| C    | 88          | MC        | 1.013           | -0.219 | 0.319 |   |
| C    | 89          | MC        | 1.386           | 0.437  | 0.262 |   |
| C    | 90A         | CR        | 1.888           | 1.082  |       |   |
| C    | 90B         | CR        | 1.693           | -1.076 | 1.787 |   |
| C    | 91          | MC        | 0.877           | -0.270 | 0.174 |   |
| C    | 92          | MC        | 1.721           | 0.212  | 0.359 |   |
| C    | 93          | MC        | 1.020           | 2.428  | 0.130 |   |

Table E16 (cont.)  
Item Parameters for Mathematics Grade 6 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |       |       |
|------|-------------|-----------|-----------------|--------|-------|-------|
|      |             |           | a               | b      | c     | d     |
| C    | 94          | MC        | 2.000           | 0.768  | 0.214 |       |
| C    | 95          | MC        | 1.418           | 0.841  | 0.252 |       |
| D    | 82A         | CR        | 2.001           | -0.996 |       |       |
| D    | 82B         | CR        | 1.453           | -0.926 | 0.876 | 2.489 |
| D    | 83          | MC        | 0.841           | -1.457 | 0.200 |       |
| D    | 84          | MC        | 1.866           | 2.390  | 0.310 |       |
| D    | 85          | MC        | 1.118           | -0.296 | 0.184 |       |
| D    | 86          | MC        | 1.028           | 0.704  | 0.197 |       |
| D    | 87          | MC        | 0.509           | 0.484  | 0.176 |       |
| D    | 88          | MC        | 0.572           | 1.263  | 0.182 |       |
| D    | 89          | MC        | 1.662           | -0.614 | 0.180 |       |
| D    | 91          | MC        | 0.551           | -0.546 | 0.191 |       |
| D    | 92          | MC        | 1.684           | 0.634  | 0.227 |       |
| D    | 93          | MC        | 0.763           | -0.336 | 0.156 |       |
| D    | 94          | MC        | 0.817           | -0.724 | 0.178 |       |
| D    | 95          | MC        | 1.166           | -0.475 | 0.294 |       |
| E    | 82A         | CR        | 1.529           | -2.142 |       |       |
| E    | 82B         | CR        | 1.180           | -1.583 | 0.181 | 1.024 |
| E    | 83          | MC        | 1.184           | 0.403  | 0.182 |       |
| E    | 84          | MC        | 1.577           | 1.114  | 0.234 |       |
| E    | 85          | MC        | 0.808           | 0.753  | 0.305 |       |
| E    | 86          | MC        | 1.408           | 1.109  | 0.054 |       |
| E    | 87          | MC        | 0.807           | 1.037  | 0.251 |       |
| E    | 88          | MC        | 1.101           | 0.816  | 0.220 |       |
| E    | 89          | MC        | 1.216           | 0.405  | 0.226 |       |
| E    | 90A         | CR        | 2.151           | 1.415  |       |       |
| E    | 90B         | CR        | 1.733           | -1.130 | 1.942 |       |
| E    | 91          | MC        | 1.424           | 0.349  | 0.217 |       |
| E    | 92          | MC        | 0.808           | -1.211 | 0.207 |       |
| E    | 93          | MC        | 0.904           | -0.493 | 0.314 |       |
| E    | 94          | MC        | 1.240           | 1.558  | 0.144 |       |
| E    | 95          | MC        | 0.966           | -0.318 | 0.291 |       |

Table E17  
Item Parameters for Mathematics Grade 7 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |       |       |
|------|-------------|-----------|-----------------|--------|-------|-------|
|      |             |           | a               | b      | c     | d     |
| A    | 82A         | CR        | 1.713           | 1.756  |       |       |
| A    | 82B         | CR        | 1.220           | 0.272  | 1.513 |       |
| A    | 83          | MC        | 1.105           | 0.418  | 0.177 |       |
| A    | 84          | MC        | 1.893           | 0.252  | 0.127 |       |
| A    | 85          | MC        | 0.857           | -1.961 | 0.200 |       |
| A    | 86          | MC        | 1.421           | -0.574 | 0.285 |       |
| A    | 87          | MC        | 1.359           | 0.819  | 0.114 |       |
| A    | 88          | MC        | 1.323           | 0.191  | 0.192 |       |
| A    | 89          | SPR       | 1.713           | 1.811  |       |       |
| A    | 90          | SPR       | 2.329           | 0.287  |       |       |
| A    | 91A         | CR        | 1.904           | -0.021 |       |       |
| A    | 91B         | CR        | 1.358           | 0.083  | 0.598 | 2.813 |
| A    | 92          | MC        | 1.320           | -1.070 | 0.206 |       |
| A    | 93          | MC        | 1.517           | -0.603 | 0.286 |       |
| A    | 94          | MC        | 1.267           | 1.026  | 0.351 |       |
| A    | 95          | SPR       | 1.075           | 0.162  |       |       |
| B    | 82A         | CR        | 0.909           | -0.625 |       |       |
| B    | 82B         | CR        | 1.259           | -3.800 | 1.795 | 4.308 |
| B    | 83          | MC        | 1.336           | -0.119 | 0.134 |       |
| B    | 84          | MC        | 0.986           | -1.671 | 0.200 |       |
| B    | 85          | MC        | 0.633           | 1.571  | 0.265 |       |
| B    | 86          | SPR       | 1.494           | -1.251 |       |       |
| B    | 87A         | CR        | 2.005           | -1.340 |       |       |
| B    | 87B         | CR        | 1.718           | -1.560 | 1.149 |       |
| B    | 88          | MC        | 1.231           | 1.309  | 0.403 |       |
| B    | 89          | MC        | 1.487           | -0.379 | 0.425 |       |
| B    | 90          | MC        | 1.486           | -0.105 | 0.163 |       |
| B    | 91A         | CR        | 2.025           | 2.971  |       |       |
| B    | 91B         | CR        | 1.071           | -0.932 | 1.729 |       |
| B    | 92          | SPR       | 1.788           | 0.819  |       |       |
| C    | 82A         | CR        | 1.096           | -0.414 |       |       |
| C    | 82B         | CR        | 1.215           | 0.240  | 1.977 |       |
| C    | 83          | MC        | 0.981           | -0.511 | 0.102 |       |
| C    | 84          | MC        | 1.976           | 1.359  | 0.172 |       |
| C    | 85          | MC        | 1.705           | 0.556  | 0.328 |       |
| C    | 86A         | CR        | 1.613           | -1.824 |       |       |
| C    | 86B         | CR        | 1.377           | -2.420 | 3.030 |       |
| C    | 87          | SPR       | 1.945           | -0.565 |       |       |
| C    | 88A         | CR        | 1.537           | 1.685  |       |       |
| C    | 88B         | CR        | 1.410           | -1.495 | 3.438 |       |

Table E17 (cont.)  
Item Parameters for Mathematics Grade 7 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |       |   |
|------|-------------|-----------|-----------------|--------|-------|---|
|      |             |           | a               | b      | c     | d |
| C    | 89          | MC        | 1.065           | 0.003  | 0.190 |   |
| C    | 90          | MC        | 0.813           | 0.409  | 0.254 |   |
| C    | 91          | MC        | 1.738           | 0.289  | 0.208 |   |
| C    | 92          | MC        | 1.267           | 0.529  | 0.220 |   |
| C    | 93          | SPR       | 1.909           | -0.992 |       |   |
| C    | 94          | SPR       | 2.259           | 1.138  |       |   |
| C    | 95          | SPR       | 2.070           | -0.228 |       |   |
| D    | 82A         | CR        | 0.985           | 0.780  |       |   |
| D    | 82B         | CR        | 0.965           | -1.210 | 6.316 |   |
| D    | 83          | MC        | 1.055           | 1.046  | 0.077 |   |
| D    | 84          | MC        | 0.834           | -1.180 | 0.187 |   |
| D    | 85          | MC        | 1.046           | 0.587  | 0.190 |   |
| D    | 86A         | CR        | 1.282           | 0.360  |       |   |
| D    | 86B         | CR        | 1.169           | 0.795  | 2.539 |   |
| D    | 87          | SPR       | 1.570           | -0.557 |       |   |
| D    | 88A         | CR        | 2.097           | 1.959  |       |   |
| D    | 88B         | CR        | 0.941           | -0.441 | 1.751 |   |
| D    | 89          | MC        | 0.724           | 2.028  | 0.211 |   |
| D    | 91          | MC        | 0.795           | 0.211  | 0.214 |   |
| D    | 92          | MC        | 1.072           | 0.047  | 0.201 |   |
| D    | 93          | SPR       | 1.614           | 0.621  |       |   |
| D    | 94          | SPR       | 0.962           | 0.456  |       |   |
| D    | 95          | SPR       | 1.254           | 1.148  |       |   |
| E    | 82A         | CR        | 2.213           | 1.299  |       |   |
| E    | 82B         | CR        | 1.578           | -0.972 | 4.889 |   |
| E    | 83          | MC        | 0.775           | 0.409  | 0.147 |   |
| E    | 84          | MC        | 1.269           | 0.879  | 0.161 |   |
| E    | 85          | MC        | 0.554           | -0.198 | 0.168 |   |
| E    | 86A         | CR        | 0.814           | 1.688  |       |   |
| E    | 86B         | CR        | 1.071           | -1.473 | 5.484 |   |
| E    | 87          | SPR       | 1.876           | 3.112  |       |   |
| E    | 88A         | CR        | 1.520           | 1.144  |       |   |
| E    | 88B         | CR        | 1.618           | -0.848 | 1.829 |   |
| E    | 89          | MC        | 2.000           | 1.942  | 0.224 |   |
| E    | 90          | MC        | 1.402           | 1.111  | 0.087 |   |
| E    | 91          | MC        | 1.067           | 0.581  | 0.188 |   |
| E    | 92          | MC        | 1.061           | 1.021  | 0.143 |   |
| E    | 93          | SPR       | 1.434           | -0.317 |       |   |
| E    | 94          | SPR       | 1.587           | 0.783  |       |   |
| E    | 95          | SPR       | 1.676           | 2.116  |       |   |

Table E18  
Item Parameters for Mathematics Grade 8 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |       |       |
|------|-------------|-----------|-----------------|--------|-------|-------|
|      |             |           | a               | b      | c     | d     |
| A    | 77A         | CR        | 1.337           | 2.995  |       |       |
| A    | 77B         | CR        | 1.201           | 0.136  | 4.161 |       |
| A    | 78          | MC        | 0.449           | 0.025  | 0.174 |       |
| A    | 79          | MC        | 1.456           | 0.704  | 0.217 |       |
| A    | 80          | MC        | 0.563           | -0.619 | 0.200 |       |
| A    | 81          | MC        | 1.604           | 0.205  | 0.297 |       |
| A    | 82          | SPR       | 2.571           | 3.004  |       |       |
| A    | 83          | SPR       | 1.476           | -0.900 |       |       |
| A    | 84          | SPR       | 2.012           | 1.768  |       |       |
| A    | 85          | SPR       | 1.496           | 0.917  |       |       |
| A    | 86A         | CR        | 1.505           | 0.844  |       |       |
| A    | 86B         | CR        | 1.676           | -1.629 | 1.739 |       |
| A    | 87          | MC        | 0.881           | -0.151 | 0.200 |       |
| A    | 88          | MC        | 1.642           | 0.189  | 0.325 |       |
| A    | 89          | MC        | 0.757           | -0.383 | 0.161 |       |
| A    | 90A         | CR        | 1.916           | 0.298  |       |       |
| A    | 90B         | CR        | 1.681           | -0.247 | 4.279 |       |
| B    | 77A         | CR        | 1.625           | 1.079  |       |       |
| B    | 77B         | CR        | 1.043           | -0.661 | 0.747 |       |
| B    | 78          | MC        | 1.366           | 0.488  | 0.361 |       |
| B    | 79          | MC        | 0.966           | -0.316 | 0.212 |       |
| B    | 80          | MC        | 1.108           | -0.082 | 0.241 |       |
| B    | 81          | MC        | 0.592           | 0.332  | 0.157 |       |
| B    | 82          | SPR       | 1.251           | -1.407 |       |       |
| B    | 83          | SPR       | 2.479           | 0.547  |       |       |
| B    | 84          | SPR       | 2.568           | 2.739  |       |       |
| B    | 85          | SPR       | 1.941           | 0.956  |       |       |
| B    | 87          | MC        | 0.745           | -0.106 | 0.111 |       |
| B    | 88          | MC        | 1.466           | 0.012  | 0.162 |       |
| B    | 89          | MC        | 1.018           | -1.102 | 0.280 |       |
| C    | 77A         | CR        | 2.622           | 1.132  |       |       |
| C    | 77B         | CR        | 1.377           | -1.907 | 1.023 | 0.837 |
| C    | 78          | MC        | 0.522           | -0.542 | 0.200 |       |
| C    | 79          | MC        | 0.628           | 0.012  | 0.143 |       |
| C    | 80          | MC        | 1.495           | 0.569  | 0.252 |       |
| C    | 81          | MC        | 0.649           | -0.180 | 0.258 |       |
| C    | 82          | MC        | 0.682           | 0.232  | 0.162 |       |
| C    | 83          | SPR       | 1.712           | -2.590 |       |       |
| C    | 85          | MC        | 0.408           | -0.616 | 0.200 |       |
| C    | 86          | MC        | 0.964           | 0.534  | 0.149 |       |



Table E18 (cont.)  
Item Parameters for Mathematics Grade 8 Field Test Items

| Form | Item Number | Item Type | Item Parameters |        |        |       |
|------|-------------|-----------|-----------------|--------|--------|-------|
|      |             |           | a               | b      | c      | d     |
| C    | 87          | MC        | 0.375           | -0.865 | 0.200  |       |
| C    | 88          | MC        | 1.093           | 0.461  | 0.103  |       |
| C    | 89          | SPR       | 1.218           | -0.629 |        |       |
| C    | 90          | SPR       | 2.022           | 2.850  |        |       |
| D    | 77A         | CR        | 1.461           | 1.142  |        |       |
| D    | 77B         | CR        | 0.915           | 0.400  | 1.165  | 0.395 |
| D    | 78          | MC        | 1.403           | 0.648  | 0.079  |       |
| D    | 79          | MC        | 1.454           | -0.376 | 0.284  |       |
| D    | 80          | MC        | 1.725           | 1.453  | 0.211  |       |
| D    | 81          | MC        | 0.679           | -1.500 | 0.200  |       |
| D    | 82          | MC        | 1.471           | 1.278  | 0.179  |       |
| D    | 83          | SPR       | 0.399           | -0.480 |        |       |
| D    | 84A         | CR        | 1.402           | -0.045 |        |       |
| D    | 84B         | CR        | 1.132           | -1.284 | -0.224 |       |
| D    | 85          | MC        | 0.681           | 0.269  | 0.180  |       |
| D    | 86          | MC        | 0.857           | 0.044  | 0.277  |       |
| D    | 87          | MC        | 0.738           | 1.047  | 0.098  |       |
| D    | 88          | MC        | 0.551           | -0.449 | 0.172  |       |
| D    | 89          | SPR       | 1.433           | 0.161  |        |       |
| D    | 90          | SPR       | 1.342           | -1.150 |        |       |
| E    | 77A         | CR        | 1.426           | 2.976  |        |       |
| E    | 77B         | CR        | 1.344           | 1.755  |        |       |
| E    | 78          | MC        | 1.304           | 0.485  | 0.096  |       |
| E    | 79          | MC        | 1.497           | 1.344  | 0.186  |       |
| E    | 80A         | CR        | 2.955           | 2.337  |        |       |
| E    | 80B         | CR        | 1.553           | 1.358  | 1.022  | 2.368 |
| E    | 81          | MC        | 1.118           | 1.224  | 0.197  |       |
| E    | 82          | MC        | 1.279           | 1.008  | 0.163  |       |
| E    | 83          | MC        | 1.163           | 0.358  | 0.198  |       |
| E    | 84          | MC        | 0.436           | -2.748 | 0.200  |       |
| E    | 85A         | CR        | 2.033           | -0.219 |        |       |
| E    | 85B         | CR        | 1.396           | -1.171 | -0.483 |       |
| E    | 86          | SPR       | 1.811           | 1.001  |        |       |
| E    | 87          | SPR       | 2.143           | 3.065  |        |       |