Released Items
Variable key \& construct map
Released items_2008

| Item \# | Description | Answer | Construct | Elementary or Middle School |
| :---: | :---: | :---: | :---: | :---: |
|  | Elementary Content Knowledge (CK) Items |  |  |  |
| 1a | 0 is even | 1 | NCOP CCK | EL |
| 1b | 0 not a number | 2 | NCOP CCK | EL |
| 1c | 8 is 008 | 1 | NCOP CCK | EL |
| 2 | 371 prime? | 3 | NCOP CCK | EL |
| 3a | $35 \times 25$ Method A | 1 | NCOP SCK | EL |
| 3b | $35 \times 25$ Method B | 1 | NCOP SCK | EL |
| 3c | $35 \times 25$ Method C | 1 | NCOP SCK | EL |
| 4 | Divisibility rule for 4 | 2 | NCOP SCK | EL |
| 5 | 5/8 of total (2) pizza | 3 | NCOP SCK | EL |
| 6 | Model $11 / 2 \times 2 / 3$ | 3 | NCOP SCK | EL |
| 7a | Divide $11 / 4$ pies between 2 families | 2 | NCOP SCK | EL |
| 7b | Have \$1.25 and may double | 2 | NCOP SCK | EL |
| 7c | $11 / 4$ cups butter, \# 1/2 cup sticks? | 1 | NCOP SCK | EL |
| 8 | $983 \times 6$ alternative method | 3 | NCOP SCK | EL |
| 9 | Odd/even method | 4 | NCOP SCK | EL |
|  | Knowledge of Content and Students (KCS) Items |  |  |  |
| 10a | $8 \times 8$ by breaking up | 1 | NCOP KCS | EL |
| 10b | $8 \times 8$ by doing $10 \times 10$ \& subtracting | 2 | NCOP KCS | EL |
| 10c | $8 \times 8$ by $8 \times 10$ then subtracting $8 \times 2$ | 1 | NCOP KCS | EL |
| 10d | $8 \times 8$ by $8 \times 5$ and then counting on | 1 | NCOP KCS | EL |
| 11 | Ignoring decimal point | 2 | NCOP KCS | EL |
| 12 | Show 23 with checkers | 3 | NCOP KCS | EL |
| 13 | Mrs Jackson, always carry 1 | 1 | NCOP KCS | EL |
| 14a | 100s chart-average vert=horiz | 1 | NCOP KCS | EL |
| 14b | Both add to 96 | 2 | NCOP KCS | EL |
| 14c | $3 \times$ middle | 1 | NCOP KCS | EL |
| 14d | 10 more, 10 less | 2 | NCOP KCS | EL |
| 15 | Jackson borrow across 0 | 1 | NCOP KCS | EL |


| 16 | Compare 3/4 and 5/6 | 1 | NCOP KCS | EL |
| :---: | :---: | :---: | :---: | :---: |
| 17a | Abundant error: Adding incorrectly | 2 | NCOP KCS | EL |
| 17b | Abundant error: Reversing abundant | 1 | NCOP KCS | EL |
| 17c | Abundant error: Confusing factors | 1 | NCOP KCS | EL |
| 17d | Abundant error: Square numbers | 2 | NCOP KCS | EL |
| 18 | Symmetry in polygons | 4 | GEO KCS | MS |
| 19 | Proportional reasoning-challenging | 2 | PR KCS | MS |
|  | Knowledge of Content and Teaching (KCT) Items |  |  |  |
| 20 | Place value to young learners | 4 | NCOP KCT | EL |
| 21 | Compare/order fractions, choose examples | 3 | NCOP KCT | EL |
| 22 | How many 4s in 3 ? | 2 | NCOP KCT | EL |
| 23 | Simpler version, same problem | 2 | NCOP KCT | EL |
| 24 | Poster definition for triangle | 2 | GEO KCT | MS |
| 25 | Unknown angle in triangle | 2 | GEO KCT | MS |
| 26 | Deductive reasoning | 2 | GEO KCT | MS |
| 27 | Tessellating plane with quadrilaterals | 2 | GEO KCT | MS |
| 28 | Converting fractions-choose examples | ? | RAT KCT | MS |
|  | Middle School Content Knowledge Items |  |  |  |
| 29a | 2 negatives make positive-addition | 3 | NCOP CK | MS |
| 29b | 2 negatives make positive-subtract | 1 | NCOP CK | MS |
| 29c | 2 negatives make positive- multiply | 2 | NCOP CK | MS |
| 29d | 2 negatives make positive- division | 2 | NCOP CK | MS |
| 30a | Same ratio/different ratio-heights | 1 | PR CK | MS |
| 30b | Same ratio/different ratio-temps | 2 | PR CK | MS |
| 30c | Same ratio/different ratio=speed | 1 | PR CK | MS |
| 30d | Same ratio/different ratio-bank accts | 2 | PR CK | MS |
| 31a | Distributive property- add fractions | 1 | PFA SCK | MS |
| 31b | Distributive property- solve for x | 2 | PFA SCK | MS |
| 31c | Distributive property-combining like terms | 1 | PFA SCK | MS |
| 31d | Distributive property-adding $34+25$ | 1 | PFA SCK | MS |
| 32 | $a-(b+c)$ equivalent to $a-b-c$ | 5 | PFA SCK | MS |


| $33 a$ | Area- $a^{2}+5$ | 2 | PFA SCK | MS |
| :--- | :--- | :---: | :---: | :---: |
| 33 b | Area- $(a+5)^{2}$ | 2 | PFA SCK | MS |
| $33 c$ | Area- $a^{2}+5 a$ | 1 | PFA SCK | MS |
| 33 d | Area- $(a+5) a$ | 1 | PFA SCK | MS |
| 33 e | Area- $2 a+5$ | 2 | PFA SCK | MS |
| $33 f$ | Area- $4 a+10$ | 2 | PFA SCK | MS |
| 34 | Explaining reversing inequalities | 4 | PFA SCK | MS |
| 35 | $0.3 \times 2$ very carefully | 2 | RAT SCK | MS |

* Note: SCK and CCK distinctions are guesses based on theory.

NCOP-Number concepts and operations
PFA-Patterns, functions, and algebra GEO-Geometry
RAT-Rational numbers
PR-Proportional reasoning
CCK-Common content knowledge
SCK- Specialized content knowledge
KCS - Knowledge of content and students
KCT - Knowledge of content and teaching

