Grade 7 Mathematics Item Map: A Resource to Understanding Student Scores

Virginia students participate in grades 3-8 Virginia Growth Assessments and Standards of Learning tests in reading and mathematics. This item map is a resource that provides descriptions and examples of items students were likely to answer correctly based on the vertical scaled score they achieved on their test. A vertical scaled score is a score that allows comparisons between Virginia Growth Assessments and Standards of Learning tests.

The item map shown in the tables below provides examples of test question descriptions at different score points from 1110-1940, the vertical scaled score range for Grade 7 Mathematics. These examples represent what students may see on the state assessments in Grade 7 Mathematics.

The descriptions are examples of what students may know or be able to do at each score point. Some descriptions include a released test question and answer options to further show what the student would *most likely answer correctly* if they achieved at or above that score point. This information, along with a student's test results, may be used to plan conversations with families, determine intervention strategies to strengthen student understanding, or establish a plan to accelerate learning.

Match the student's score to the closest number in the left column. In the right column is a description of an item the student would *most likely answer correctly*, based on their score. The student would also most likely correctly answer questions at all score points below the score they achieved.

Students who scored in the range 1646 – 1940 are well prepared for learning new grade-level content.

Score	Description of Test Item
1768	Use proportional reasoning to solve a multistep problem in context. (Number, Number Sense, Computation, and Estimation)
1721	Write a proportion to represent the relationship of corresponding sides of similar quadrilaterals. (Measurement and Geometry)
1693	Solve a contextual problem to determine the volume of a cylinder. (Measurement and Geometry)

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| 1683 | Make connections between different representations of a proportional relationship. (Probability, Statistics, Patterns, Functions, and Algebra) |

Which table of values uses this rule?

The quotient of x and four is y.

○ A.

x	y
$-\dfrac{1}{2}$	$^-8$
$^-1$	$^-4$

○ B.

x	y
$-\dfrac{5}{4}$	$^-5$
1	4

○ C.

x	y
$-\dfrac{5}{2}$	$\dfrac{3}{2}$
2	6

○ D.

x	y
$^-2$	$-\dfrac{1}{2}$
3	$\dfrac{3}{4}$

1651	Determine the experimental or theoretical probability of an event. (Probability, Statistics, Patterns, Functions, and Algebra)

Directions: Drag the correct answer to each box.

A student performs an experiment by rolling a fair number cube and recording the results.

- The number cube has faces labeled 1, 2, 3, 4, 5, and 6.
- The number cube is rolled 60 times.

The table shows the student's results.

Experiment Results

Number Facing Up	1	2	3	4	5	6
Number of Rolls	11	7	12	8	9	13

Based on these results, what was the experimental probability of the number cube landing with an even number facing up?

The experimental probability of the number cube landing with an even number facing up is $\dfrac{\boxed{}}{\boxed{}}$.

| 3 | 8 | 13 | 28 | 30 | 32 | 60 |

Students who scored in the range 1551 – 1645 are at risk for needing additional support with learning grade-level content.

Score	Description of Test Item
1637	Determine the square root of a perfect square less than or equal to 400. (Number, Number Sense, Computation, and Estimation)

1613	Solve problems involving surface area of rectangular prisms and cylinders . (Measurement and Geometry)

Jess has a wooden block in the shape of a rectangular prism, as shown.
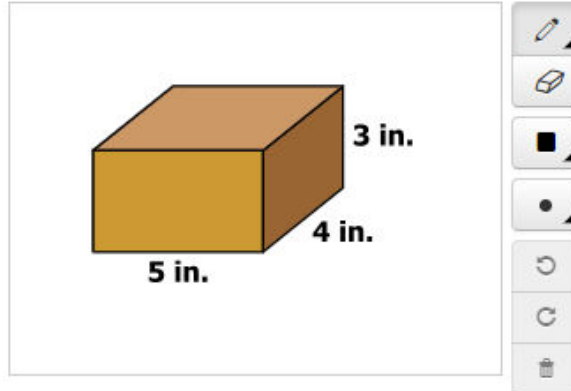
Jess will buy one can of paint to cover all the faces of the prism. The can of paint must contain enough paint to cover at least —
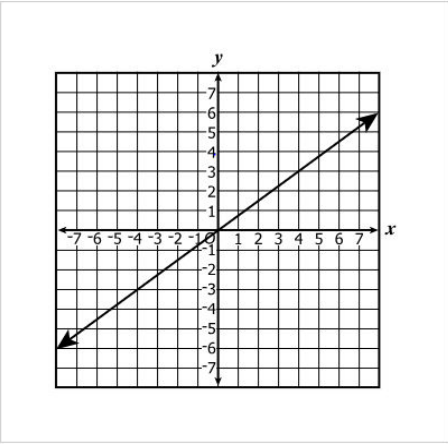
○ A. 60 square inches

○ B. 60 cubic inches

○ C. 94 square inches

○ D. 94 cubic inches

1580	Identify the absolute value of a number. (Number, Number Sense, Computation, and Estimation)

Which numbers have an absolute value of $\frac{5}{8}$?

- A. $0, \frac{5}{8}$

- B. $-\frac{5}{8}, 0$

- C. $-\frac{5}{8}, \frac{5}{8}$

- D. $-\frac{8}{5}, \frac{8}{5}$

1571	Solve a two-step linear inequality in one variable. (Probability, Statistics, Patterns, Functions, and Algebra)
1564	Compare the experimental and theoretical probabilities of an event. (Probability, Statistics, Patterns, Functions, and Algebra)

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Students who scored in the range 1110 – 1550 need additional support with prior knowledge and foundational skills while learning grade-level content.

Score	Description of Test Item
1536	Make connections between different representations of a proportional relationship. (Probability, Statistics, Patterns, Functions, and Algebra)

The graph of a line is shown.

Which table of values contains only ordered pairs that appear to lie on this line?

○ A.

x	y
-2	-3
4	3

○ B.

x	y
-4	-3
4	3

○ C.

x	y
-2	-3
3	4

○ D.

x	y
-3	-4
3	4

Score	Description of Test Item
1516	Solve a two-step linear equation. (Probability, Statistics, Patterns, Functions, and Algebra)

Directions: Type your answer in the box.

What is the solution to $6x - 8 = 118$?

$x =$ ☐

Score	Description of Test Item
1486	Use proportional reasoning to solve a multistep problem in context. (Number, Number Sense, Computation, and Estimation)
1458	Determine the volume of a rectangular prism. (Measurement and Geometry)
1351	Determine the angle measures of a quadrilateral based on properties. (Measurement and Geometry)