Spring 2014 Student Performance Analysis

Grade 5 Mathematics Standards of Learning

Presentation may be paused and resumed using the arrow keys or the mouse.

VIRGINIA DEPARTMENT OF EDUCATION

Comparing and Ordering Fractions

SOL 5.2

The student will

a) **recognize and name fractions in their equivalent decimal form and vice versa; and**

b) **compare and order fractions and decimals in a given set from least to greatest and greatest to least.**

Suggested Practice for SOL 5.2b

Students need additional practice comparing and ordering a set of fractions.

Which list shows these fractions ordered from greatest to least?

$$\frac{2}{3}, \frac{4}{7}, \frac{3}{8}, \frac{5}{6}$$

A $\frac{5}{6}, \frac{4}{7}, \frac{3}{8}, \frac{2}{3}$

B $\frac{5}{6}, \frac{2}{3}, \frac{4}{7}, \frac{3}{8}$

C $\frac{3}{8}, \frac{4}{7}, \frac{2}{3}, \frac{5}{6}$

D $\frac{3}{8}, \frac{4}{7}, \frac{5}{6}, \frac{2}{3}$

Suggested Practice for SOL 5.2b

Students need additional practice comparing and ordering a set of decimals and fractions.

Order these numbers from least to greatest.

$3\frac{3}{4}$, 3.34, $3\frac{5}{8}$, 3.5

3.34, 3.5, $3\frac{5}{8}$, $3\frac{3}{4}$

Solving Practical Problems Involving Operations with Whole Numbers

SOL 5.4

The student will create and solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division with and without remainders of whole numbers.

Suggested Practice for SOL 5.4

Students need additional practice solving multistep problems involving addition, subtraction, multiplication, and division of whole numbers.

Paul needs to buy 4 new tires for his car. This table shows the cost of a tire at two different stores.

Store	Cost
X	$115
Y	$88

What is the total amount of money Paul will save if he buys 4 tires at Store Y rather than Store X?

$108

Suggested Practice for SOL 5.4

Maria has three boxes of pictures to display on posters.

- **Box A has 96 pictures.**
- **Box B has 39 pictures.**
- **Box C has 87 pictures.**

Each poster can hold 10 pictures. What is the minimum number of posters Maria will need to display all of these pictures?

Maria will need 23 posters.

Finding the Product of Decimals

SOL 5.5

The student will

a) find the sum, difference, product, and quotient of two numbers expressed as decimals through thousandths (divisors with only one nonzero digit); and

b) create and solve single-step and multistep practical problems involving decimals.

Suggested Practice for SOL 5.5a

Students need additional practice multiplying decimals.

1. 20.5 x 0.4 = ? — 8.2
2. 0.55 x 0.5 = ? — 0.275
3. 2.5 x 2.5 = ? — 6.25

Suggested Practice for SOL 5.5b

Students need additional practice solving practical problems that involve multiplication of decimals.

Emily bought 1.5 pounds of grapes at a cost of $2.26 per pound and 0.4 pounds of potatoes at a cost of $1.10 per pound. What is the total cost of these grapes and potatoes?

A $3.36

B $3.83

C $6.38

D $7.79

Solving Practical Problems Involving Addition and Subtraction of Fractions

SOL 5.6

The student will solve single-step and multistep practical problems involving addition and subtraction with fractions and mixed numbers and express answers in simplest form.

Suggested Practice for SOL 5.6

Students need additional practice solving practical problems involving addition and subtraction with fractions and mixed numbers.

At the end of May, George's height was $54\frac{3}{4}$ inches.

At the end of August, George's height was $55\frac{1}{8}$ inches.

Exactly how much did George grow between the end of May and the end of August?

A $1\frac{5}{8}$ **inches** Most common error

B $\frac{5}{8}$ **inch**

C $\frac{3}{8}$ **inch**

D $1\frac{3}{8}$ **inches**

Suggested Practice for SOL 5.6

Jill has a bag containing $3\frac{1}{2}$ cups of flour. She will use $1\frac{1}{4}$ cups of flour to make cookies and $\frac{1}{3}$ cup of flour to make candy.

How many cups of flour will Jill have left after she has made these cookies and candy?

$1\frac{11}{12}$ cups

Solving Practical Problems Involving Area, Perimeter, Volume, and Measurement

SOL 5.8

The student will

a) **find perimeter, area, and volume in standard units of measure;**

b) **differentiate among perimeter, area, and volume and identify whether the application of the concept of perimeter, area, or volume is appropriate for a given situation;**

c) **identify equivalent measurements within the metric system;**

d) **estimate and then measure to solve problems, using U.S. Customary and metric units; and**

e) **choose an appropriate unit of measure for a given situation involving measurement using U.S. Customary and metric units.**

Suggested Practice for SOL 5.8a

Students need additional practice finding area of squares and rectangles.

A square has a side length of 12 centimeters. What is the area of the square?

A 24 square centimeters

B 48 square centimeters

Most common error

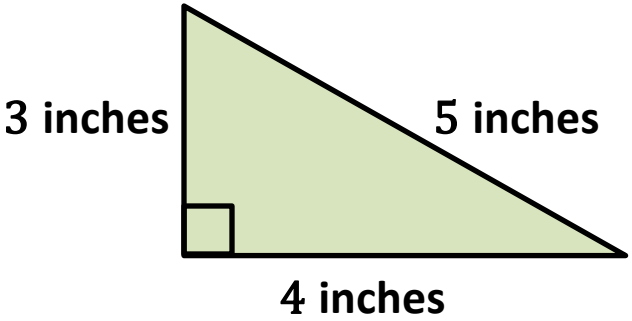
C 120 square centimeters

D 144 square centimeters

Suggested Practice for SOL 5.8a

Students need additional practice finding perimeter and area of a right triangle.

Select a number and a unit to indicate the area and perimeter of the right triangle.



Area = 6 square inches

Perimeter = 12 inches

6 10 12 15 20

inches

square inches

Suggested Practice for SOL 5.8c

Students need additional practice identifying equivalent measurements within the metric system.

Match each measurement in Column A with an equivalent measurement in Column B.

Column A	Column B
4.35 meters	435 grams
0.435 kilograms	0.0435 centimeters
43.5 milliliters	0.435 liters
	435 centimeters
	43,500 grams
	0.0435 liters

Developing Definitions of Plane Figures

SOL 5.13

The student, using plane figures (square, rectangle, triangle, parallelogram, rhombus, and trapezoid), will

a) develop definitions of these plane figures; and

b) investigate and describe the results of combining and subdividing plane figures.

Suggested Practice for SOL 5.13a

Students need additional practice identifying the similarities among and differences between squares, rectangles, parallelograms, rhombi, and trapezoids.

Which statement is true for all rectangles?

A The diagonals bisect each other.

B Exactly one pair of opposite sides is parallel.

C Exactly one pair of opposite angles is congruent.

D All four sides are congruent.

Suggested Practice for SOL 5.13a

Which statement is true for all trapezoids?

A The diagonals bisect each other.

B Exactly one pair of opposite sides is parallel.

C All four angles are right angles.

D All four sides are congruent.

Using a Sample Space to Make Predictions and Determine Probability

SOL 5.14

The student will make predictions and determine the probability of an outcome by constructing a sample space.

Suggested Practice for SOL 5.14

Students need additional practice constructing a sample space and interpreting a sample space to determine a probability.

Hilda has 4 shirts and 3 skirts in her closet. The table shows the colors of the shirts and skirts. Construct a sample space to represent all of the possible combinations of one shirt color and one skirt color that Hilda could choose from her closet.

Shirts	Skirts
Red	Brown
Green	Black
Blue	White
Yellow	

Red, Brown
Green, Brown
Blue, Brown
Yellow, Brown

Red, Black
Green, Black
Blue, Black
Yellow, Black

Red, White
Green, White
Blue, White
Yellow, White

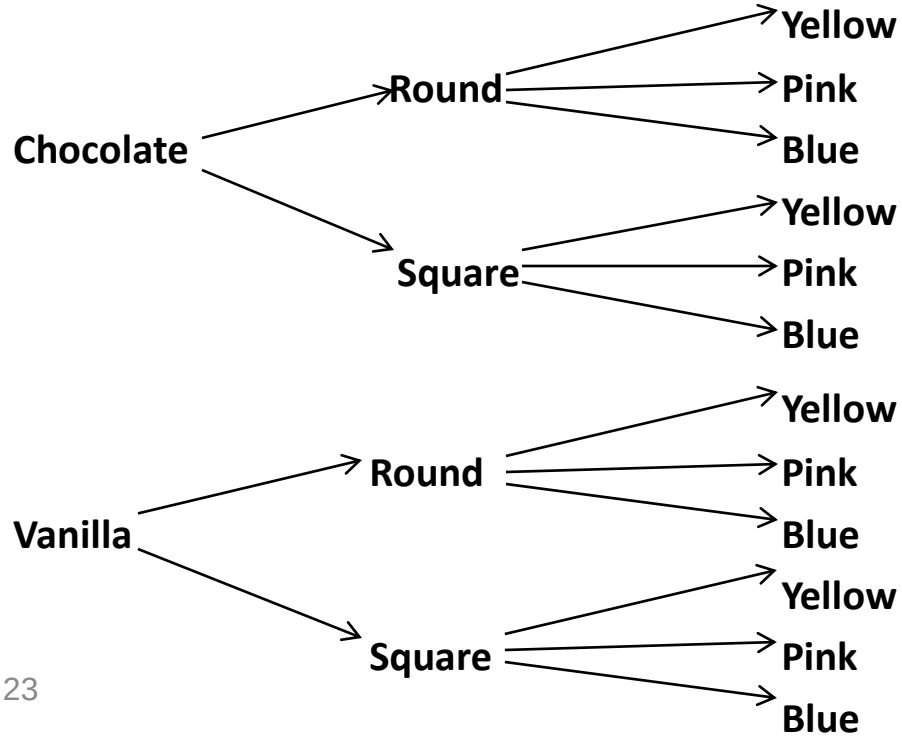
What is the probability Hilda will randomly choose a yellow shirt and a black skirt? $\frac{1}{12}$

Suggested Practice for SOL 5.14

A bakery sells cakes.

- **Each cake is either chocolate or vanilla.**
- **Each cake can be either round or square in shape.**
- **Each cake can have yellow, pink, or blue icing.**

The tree diagram shows all the possible combinations of cake types, cake shapes, and icing colors.



How many combinations are shown on this tree diagram?

A 3
B 6
C 12
D 18

Most common error

Modeling One-Step Linear Equations and Creating Problem Situations Based on an Open Sentence

SOL 5.18

The student will

a) investigate and describe the concept of variable;

b) write an open sentence to represent a given mathematical relationship, using a variable;

c) model one-step linear equations in one variable, using addition and subtraction; and

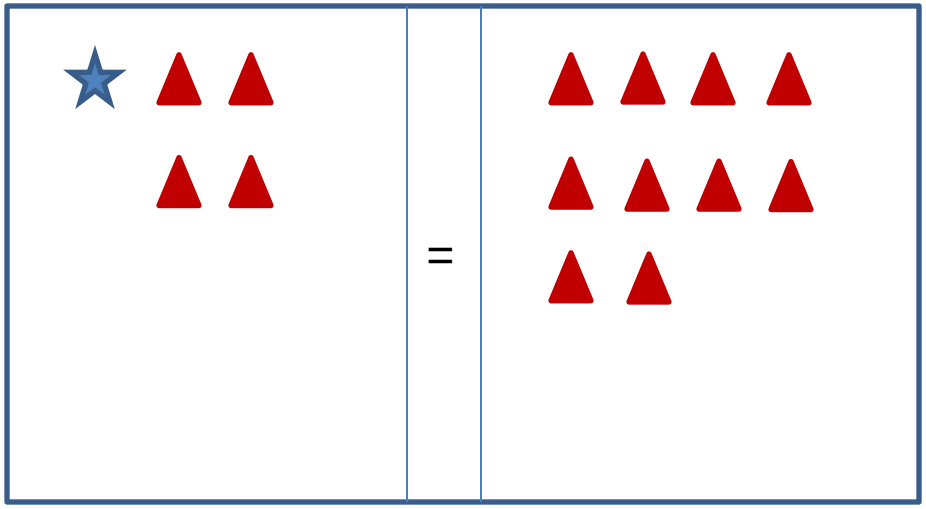
d) create a problem situation based on a given open sentence, using a single variable.

Suggested Practice for SOL 5.18c

Students need additional practice modeling one-step linear equations.

Create a model to represent this equation.

$$m + 4 = 10$$



Suggested Practice for SOL 5.18d

Students need additional practice creating a problem situation based on a given open sentence.

Which situation could be represented by $m + 4 = 16$?

A Rocco had 16 marbles. James gave him 4 more marbles. How many marbles does Rocco have now?

B Rocco had 16 more marbles than James. James has 4 marbles. How many marbles does Rocco have?

C Rocco had 4 marbles. He bought some more marbles for a total of 16. How many marbles did he buy?

D Rocco had 16 marbles. He separated them into 4 equal piles. How many marbles are in each pile?

Practice Items

This concludes the student performance information for the spring 2014 Grade 5 Mathematics SOL test.

Additionally, test preparation practice items for Grade 5 Mathematics can be found on the Virginia Department of Education Web site at:

http://www.doe.virginia.gov/testing/sol/practice_items/index.shtml#math

Contact Information

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