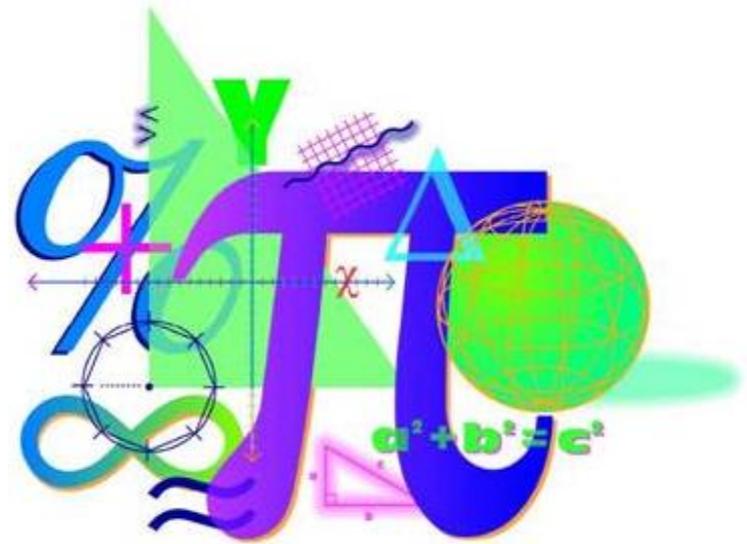


# Spring 2013 Student Performance Analysis

## Grade 5 Mathematics Standards of Learning



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

# Identifying Prime and Composite Numbers

## SOL 5.3

The student will

- a) identify and describe the characteristics of prime and composite numbers; and
- b) identify and describe the characteristics of even and odd numbers.

## Suggested Practice for SOL 5.3a

Students need additional practice distinguishing between numbers that are prime and numbers that are composite.

1. Select all of the numbers that are prime.

1     2    21     37    49    51    77     97

2. How many of the numbers listed below are composite?

2    11     27     33     52    61    73     81     91

Five of the numbers are composite.

## Suggested Practice for SOL 5.3b

Students need additional practice describing the characteristics of even numbers and odd numbers.

Which statements are true?

A number that is divisible by two is odd.

The sum of an even number and an odd number is odd.

An even number is a multiple of two.

Odd numbers have an odd number or a zero in the ones place.

The sum of two odd numbers is even.

# Solving Multistep Problems 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 practical problems involving more than one operation with whole numbers.

1. Mrs. Smith is buying pencils for the fifth-graders at her school. The number of students in each class is shown in the table.

| Fifth-Grade Classes |    |    |    |    |
|---------------------|----|----|----|----|
| Class               | W  | X  | Y  | Z  |
| Number of Students  | 26 | 23 | 25 | 24 |

Mrs. Smith will give one pencil to each student. There are 12 pencils in each package. How many of these packages of pencils should Mrs. Smith buy?

$$98 \div 12 = \textcircled{8} \text{R} \textcircled{2}$$

**Mrs. Smith needs to buy 9 packages of pencils.**

## Suggested Practice for SOL 5.4

2. Samuel's family bought some supplies for their new game room.
- They bought four game controllers that each cost the same amount for a total of \$96.
  - They bought four bean-bag chairs that each cost the same amount for a total of \$156.

What was the combined cost of one controller and one bean-bag chair? **\$63**

# Solving Problems with 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 finding the product of two decimals.

1. What is the product of 0.38 and 0.05?

A. 0.430

B. 0.190

C. 0.043

D. 0.019

2.  $0.82 \times 0.045 = \underline{0.0369}$

[http://doe.virginia.gov/testing/sol/practice\\_items/index.shtml#math](http://doe.virginia.gov/testing/sol/practice_items/index.shtml#math)

## Suggested Practice for SOL 5.5b

Students need additional practice solving multistep practical problems involving decimals.

Tom has a goal of running 50 miles this week in preparation for a marathon. He recorded the miles run each day in the table.

| Day       | Miles |
|-----------|-------|
| Monday    | 12.3  |
| Wednesday | 13.4  |
| Friday    | 11.8  |

Tom plans to finish his 50 miles when he runs on Saturday. Based on the number of miles in the table, how many miles must Tom run on Saturday to meet his goal?

**12.5 miles**

# Solving Multistep Problems with 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 multistep practical problems involving fractions and mixed numbers.

Mrs. Jones had a total of 8 cartons of vanilla ice cream to sell in the concession stand. She sold:

- $1\frac{1}{3}$  cartons on Friday
  - $2\frac{3}{4}$  cartons on Saturday
- }  $1\frac{1}{3} + 2\frac{3}{4} = 4\frac{1}{12}$  cartons sold

How many cartons of ice cream does Mrs. Jones have left to sell?

$$8 - 4\frac{1}{12} = 3\frac{11}{12} \text{ cartons left to sell}$$

## Suggested Practice for SOL 5.6

Joseph needs several cups of flour for the baking he will do this weekend. The table shows the amounts needed for each recipe.

| Recipe                   | 1              | 2              | 3              |
|--------------------------|----------------|----------------|----------------|
| Amount of Flour, in Cups | $1\frac{1}{4}$ | $2\frac{1}{2}$ | $1\frac{5}{6}$ |

1. What is the total number of cups of flour needed for these three recipes?  $1\frac{1}{4} + 2\frac{1}{2} + 1\frac{5}{6} = 5\frac{7}{12}$  cups
2. Joseph used  $7\frac{1}{2}$  cups of flour last weekend. What is the difference in the amount of flour he used last weekend and the total amount he will use this weekend?

$$7\frac{1}{2} - 5\frac{7}{12} = 1\frac{11}{12} \text{ cups}$$

# Applying the Order of Operations

## SOL 5.7

The student will evaluate whole number numerical expressions, using the order of operations limited to parentheses, addition, subtraction, multiplication, and division.

## Suggested Practice for SOL 5.7

Students need additional practice applying the order of operations.

1. What is the value of  $44 - 20 \div 4 + 6$  ?

A. 12

B. 33

C. 42

D. 45

2. Based on the order of operations, what should be the first calculation in simplifying  $6(5 + 3 \times 2) \div 2 \times 7$  ?

3.  $8(6 - 3) + 2 \div 2 = \underline{25}$

# Finding Area and Metric Equivalents

## 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 and U.S. Customary and metric units.

## Suggested Practice for SOL 5.8a

Students need additional practice finding the area of a right triangle when a diagram of the triangle is not provided.

1. What is the area of a right triangle with a base of 12 inches and a height of 5 inches?
  - A. 17 square inches
  - B. 30 square inches**
  - C. 34 square inches
  - D. 60 square inches
  
2. A right triangle has a height of 6 centimeters and a base of 8 centimeters. What is the area of this triangle?

**24 square centimeters**

## Suggested Practice for SOL 5.8c

Students need additional practice identifying the measurement that is equivalent to a given metric measurement.

1. 1,710 milliliters = \_\_\_\_\_ liters
  - A. 1,710,000
  - B. 171,000
  - C. 1.71
  - D. 0.171
2. 0.053 kilograms = 53 grams
3. 1.45 meters = 145 centimeters

# Defining and Subdividing 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 characteristics of plane figures.

Select each statement that is true.

The opposite sides of a rhombus are congruent.

All sides of a rhombus are congruent.

Every rhombus is a square.

A trapezoid must have two congruent sides.

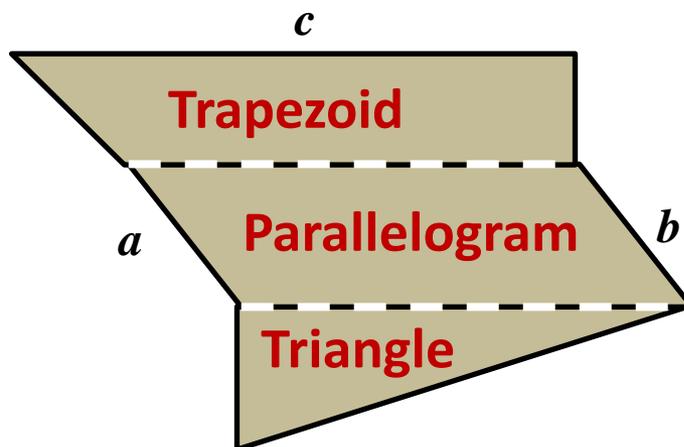
A trapezoid must have one pair of parallel sides.

Every trapezoid is a quadrilateral.

## Suggested Practice for SOL 5.13b

Students need additional practice determining the figures that result when a polygon is subdivided.

This polygon will be divided into three figures by cutting along the dashed line segments. The dashed line segments are parallel to line segment  $c$ . Side  $a$  is parallel to side  $b$ .



Use the terms from the word bank to label the figures that result from the cuts shown:

Triangle

Parallelogram

Rectangle

Rhombus

Square

Trapezoid

# Practice Items

**This concludes the student performance information for the spring 2013 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](http://www.doe.virginia.gov/testing/sol/practice_items/index.shtml#math)**

## Contact Information

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