Spring 2014 Student Performance Analysis

Grade 6 Mathematics Standards of Learning

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

VIRGINIA DEPARTMENT OF EDUCATION

Demonstrating Equivalent Relationships

SOL 6.2

The student will

a) investigate and describe fractions, decimals and percents as ratios;

b) identify a given fraction, decimal or percent from a representation;

c) demonstrate equivalent relationships among fractions, decimals, and percents; and

d) compare and order fractions, decimals, and percents.

Suggested Practice for SOL 6.2a

Students need additional practice describing a ratio as a percent, particularly when the ratio is greater than 1.

Which number is equivalent to the ratio $\frac{8}{5}$?

A 0.625

B 6.25%

C 0.16

D 160%

Suggested Practice for SOL 6.2c

Students need additional practice identifying equivalent relationships between percents and fractions, particularly when the percent is greater than 100%.

Which statement is true?

A $\frac{2}{5} = 0.04$

B $175\% = \frac{7}{4}$

C $3\frac{1}{5} = 3.2\%$ ← **Most common error**

D $58\% = 0.058$

Solving Problems with Fractions

SOL 6.6

The student will

a) multiply **and divide** fractions and mixed numbers**; and**

b) **estimate solutions and then** solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of fractions**.**

Suggested Practice for SOL 6.6a

Students need additional practice multiplying a mixed number by a fraction.

What is the product of $1\frac{1}{3}$ and $\frac{7}{10}$ in simplest form?

$$\frac{14}{15}$$

Suggested Practice for SOL 6.6b

Students need additional practice solving single-step practical problems involving subtraction of mixed numbers with unlike denominators.

The length of a rope is $21\frac{3}{8}$ feet. James cut $2\frac{3}{4}$ feet from this length of rope to use on a project. Exactly what length of rope remained unused?

$18\frac{5}{8}$ feet

Suggested Practice for SOL 6.6b

Students need additional practice solving multistep practical problems.

Each $\frac{1}{2}$ cup of milk has 4 grams of protein. Exactly how many grams of protein are in $3\frac{1}{2}$ cups of milk?

A 7 grams

B 8 grams

C 14 grams ← **Most common error**

D 28 grams

Determining Area of a Circle

SOL 6.10

The student will

a) define pi (π) as the ratio of the circumference of a circle to its diameter;

b) solve practical problems involving circumference and area of a circle, given the diameter or radius;

c) solve practical problems involving area and perimeter; and

d) describe and determine the volume and surface area of a rectangular prism.

Suggested Practice for SOL 6.10b

Students need additional practice finding the area of a circle.

A circular plate has a diameter of 11 inches. Which is closest to the area of this plate?

A 17.3 square inches

B 34.6 square inches ← Most common error

C 95.0 square inches

D 380.1 square inches

Describing Properties of Quadrilaterals

SOL 6.13

The student will describe and identify properties of quadrilaterals.

Suggested Practice for SOL 6.13

Students need additional practice identifying the angles that could describe a quadrilateral.

Create a list of angle measures that could represent the four angle measures of a quadrilateral.

$45°$, $152°$, $47°$, $116°$

Answer: Any four angle measures that sum 360 degrees
One of the many possible answers is shown.

Drawing Conclusions Using Circle Graphs

SOL 6.14

The student, given a problem situation, will

a) construct circle graphs;

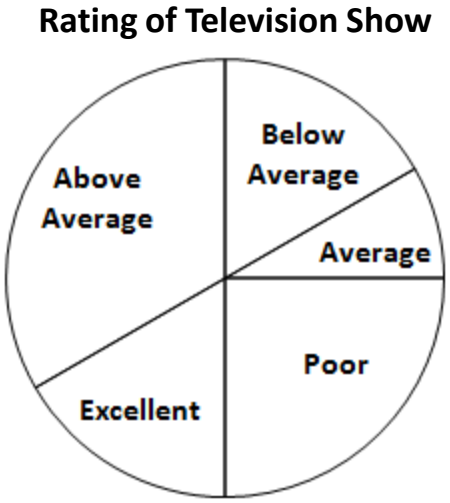
b) draw conclusions and make predictions, using circle graphs; and

c) compare and contrast graphs that present information from the same data set.

Suggested Practice for SOL 6.14b

Students need additional practice interpreting information presented in a circle graph.

Mr. Walker surveyed 24 students. He asked each student to rate a television show. The results are shown in this circle graph.



Most common error

Which fraction of the students best represents those who rated the show as "Above Average?"

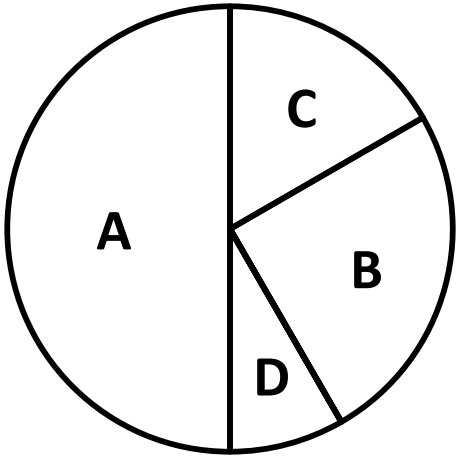
A $\frac{3}{4}$ **B** $\frac{1}{5}$ **C** $\frac{1}{3}$ **D** $\frac{2}{3}$

Suggested Practice for SOL 6.14c

Students need additional practice comparing and contrasting graphs that represent the same data set.

Twelve students answered a question that had answer choices labeled as A, B, C, and D. This circle graph represents the answer choices selected by the 12 students.

Answer Choices Selected



*The accompanying question is shown on the next screen.

Suggested Practice for SOL 6.14c

Which of these represents the data shown in the circle graph?

A

Answer Choices Selected

Answer Choice	Number of Students Selecting Choice
A	●●●●●●
B	●●●
C	●●
D	●

Key: ● = 2 students

C

Answer Choices Selected

Answer Choice	Number of Students Selecting Choice
A	●●
B	●◗
C	●
D	●

Key: ● = 2 students

B

Answer Choices Selected

Answer Choice	Number of Students Selecting Choice
A	●●●
B	●◗
C	●
D	◗

Key: ● = 2 students

D

Answer Choices Selected

Answer Choice	Number of Students Selecting Choice
A	●●●●●
B	●●●●
C	●●
D	●

Key: ● = 2 students

Deciding Appropriate Measures of Center

SOL 6.15

The student will

a) **describe mean as balance point; and**

b) **decide which measure of center is appropriate for a given purpose.**

Suggested Practice for SOL 6.15b

Students need additional practice determining which measure of center is most appropriate for a given situation.

The number of cookies that were made at a bakery for each of seven days is shown:

108, 96, 96, 84, 108, 240, and 84

The best measure of center for this data set is the-

A. mean because all of the values are close to one another in value
B. median because all of the values are close to one another in value
C. mean because 240 is much higher than the other numbers in the data set
D. median because 240 is much higher than the other numbers in the data set

Determining Probabilities

SOL 6.16

The student will

a) **compare and contrast dependent and independent events; and**

b) **determine probabilities for dependent and independent events.**

Suggested Practice for SOL 6.16b

Students need additional practice determining probabilities for dependent and independent events.

There are 6 classic rock CD's, 2 jazz CD's, and 5 country CD's in a bin. Teagan will randomly select a CD, give it to her brother, and then randomly select another CD. Which of these can be used to find the probability that Teagan will select a jazz CD as her first selection and a country CD as her second selection?

A. $\frac{2}{13} \cdot \frac{5}{13}$ ← Most common error

C. $\frac{2}{13} \cdot \frac{5}{12}$

B. $\frac{2}{13} + \frac{5}{13}$

D. $\frac{2}{13} + \frac{5}{12}$

Suggested Practice for SOL 6.16b

This table shows the drink and dessert selections at a party.

Drink	Dessert
Apple Juice	Chocolate Cake
Orange Juice	Apple Pie
Cola	
Water	

Kayla will randomly select one drink and one dessert from these lists. What is the probability that Kayla will select water and apple pie?

A. $\frac{1}{8}$

B. $\frac{1}{6}$

C. $\frac{1}{3}$ ← **Most common error**

D. $\frac{1}{2}$

Graphing Inequalities on a Number Line

SOL 6.20

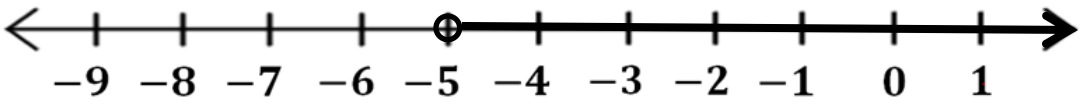
The student will graph inequalities on a number line.

Suggested Practice for SOL 6.20

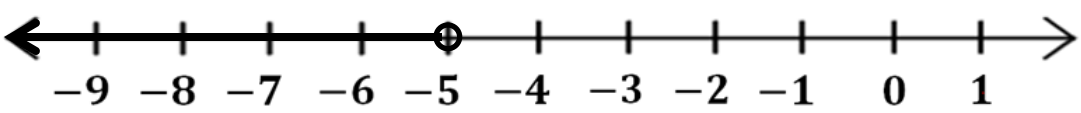
Students need additional practice graphing inequalities on a number line when the variable is on the right side of the inequality.

Which graph best represents the inequality $-5 \leq y$?

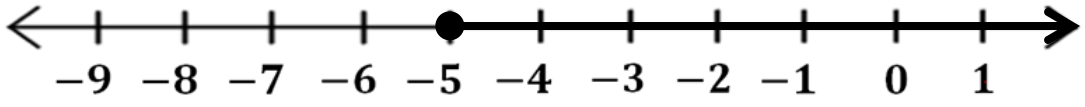
a.



b.

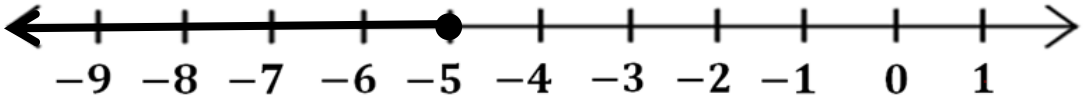


c.



Most common error

d.



Practice Items

This concludes the student performance information for the spring 2014 Grade 6 Mathematics SOL test.

Additionally, test preparation practice items for Grade 6 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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