

8th Grade Mathematics

Next Generation Learning Standards

This Test Review Booklet was designed for the Grade 8 Mathematics Assessment Test – Next Generation Mathematics Learning Standards. It provides examples of the format and types of questions that may be on the actual test as administered by the State Education Department. The actual test is administered over two days. We have separated our review tests into two parts so you may simulate a multi-day test :

Part 1:

32 multiple choice questions

Part 2:

6 multiple choice questions

3 one point constructed response questions

2 two point constructed response questions

1 three point constructed response question

Grade 8 Mathematics Reference Sheet

CONVERSIONS

1 yard = 3 feet
1 mile = 5,280 feet

1 cup = 8 fluid ounces
1 pint = 2 cups
1 quart = 2 pints
1 gallon = 4 quarts

1 pound = 16 ounces
1 ton = 2,000 pounds

CONVERSIONS ACROSS MEASUREMENT SYSTEMS

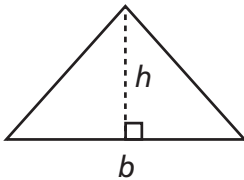
1 inch = 2.54 centimeters
1 meter = 39.37 inches
1 mile = 1.609 kilometers
1 kilometer = 0.6214 mile

1 gallon = 3.785 liters
1 liter = 0.2642 gallon

1 pound = 0.454 kilogram
1 kilogram = 2.2 pounds

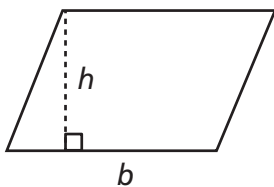
FORMULAS AND FIGURES

Triangle



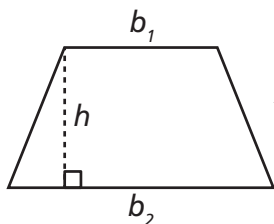
$$A = \frac{1}{2}bh$$

Parallelogram



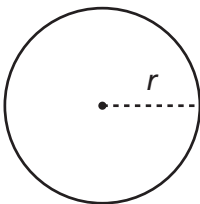
$$A = bh$$

Trapezoid



$$A = \frac{1}{2}h(b_1 + b_2)$$

Circle



$$C = 2\pi r$$

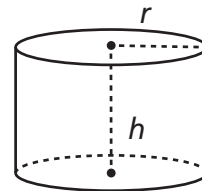
$$C = \pi d$$

$$A = \pi r^2$$

General Prism

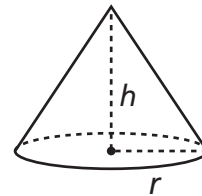
$$V = Bh$$

Right Cylinder



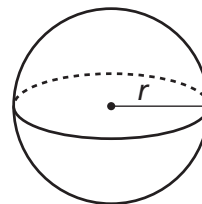
$$V = \pi r^2 h$$

Right Cone



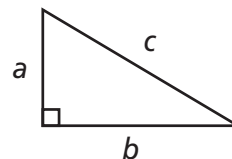
$$V = \frac{1}{3}\pi r^2 h$$

Sphere



$$V = \frac{4}{3}\pi r^3$$

Pythagorean Theorem



$$c^2 = a^2 + b^2$$

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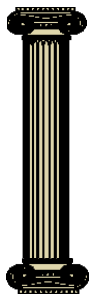
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Published by
TOPICAL REVIEW BOOK COMPANY
P. O. Box 328
Onsted, MI. 49265-0328

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Correlation of Standards – *In answer key or scan QR code for a printable PDF*





TEST 1

Part 1

Part 1 contains 32 multiple choice questions. Read each question carefully and think about the answer before making your choice. Clearly write the appropriate letter in the space provided.

1 What is the value of $\sqrt{1}$?

A 0

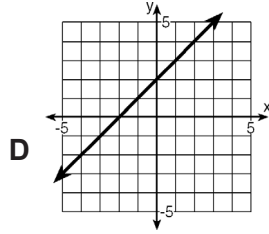
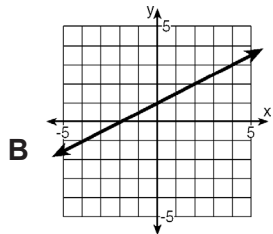
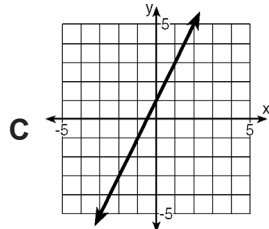
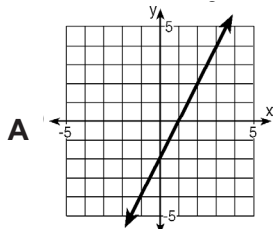
B 1

C $\frac{1}{2}$

D -1

1 _____

2 Which of the following is the correct graphic representation of the linear function $f(x) = 2x + 1$?



2 _____

3 $5^2 \cdot 5 =$

A 25^2

B 25^3

C 5^3

D 5^2

3 _____

4 Which of the following equations has an infinite number of solutions?

A $3(2x + 1) = 2(1 + 3x) + 1$

B $3(2x + 1) = 2(1 + 3x) - 1$

C $3(2x - 1) = 2(1 + 3x) - 1$

D $3(2x + 1) = 2(3 + 2x) - 3$

4 _____

5 What geometric shapes can be drawn from two sets of equivalent parallel sides measuring 3 inches and 4.5 inches?

A A trapezoid and a parallelogram

B A rectangle and a parallelogram

C A rectangle, a parallelogram, and a square

D A trapezoid, a parallelogram, and a rectangle

5 _____

6 What is the maximum number of times that the graph of a function can intersect the y-axis?

A 3

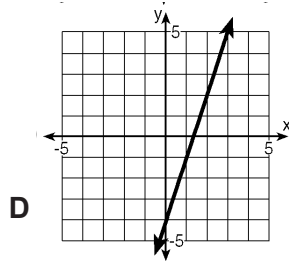
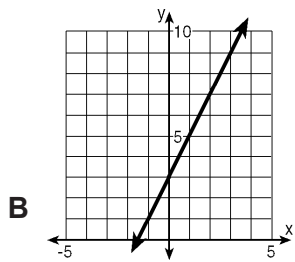
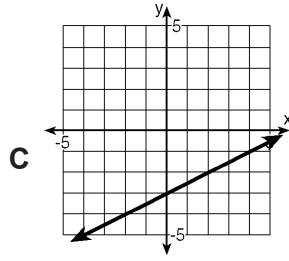
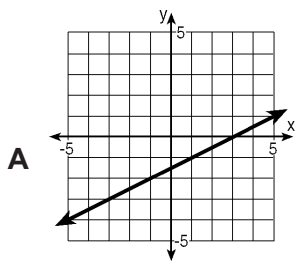
B 2

C 1

D 0

6 _____

- 7 Which of the following is the correct graphic representation of the linear function $f(x) = 3x - 4$?



7 _____

- 8 What is an equation of the linear function that represents the following table of values?

x	y
2	4
3	6
4	8

- A** $f(x) = x - 2$
B $f(x) = x + 2$
C $f(x) = -2x$
D $f(x) = 2x$

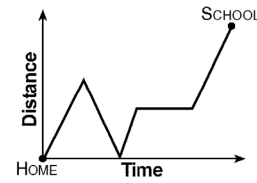
8 _____

9 $3^4 \cdot 3^7 =$

- A** 11^3
B 3^3
C 3^{11}
D 9^{11}

9 _____

- 10 The graph below indicates Juanita's distance from home as she travels to school.



Which of the following best describes Juanita's journey to school?

- A** She leaves for school, stops to play with a puppy, continues on her way, stops at the market to buy a bottle of juice, and arrives at school.
B She leaves for school, returns home to retrieve a homework assignment, leaves for school again, waits for a train to pass, and arrives at school.
C She runs out the door, slows down to pick up a dollar, starts running again, stops to buy some candy, and runs to school.
D She dashes out the door, slows her pace down, starts skipping, jogs at a steady pace, and sprints to school. 10 _____

- 11 Trent draws a triangle with one interior angle measuring 34° . Which angle measures could be the measures of the other two interior angles in Trent's triangle?

- A** 46° and 90°
B 53° and 127°
C 66° and 80°
D 68° and 68°

11 _____

12 If the y -intercept of a line is 4, what could be an equation for this line?

- A $y = x - 4$
- B $y = 4x$
- C $y = 4x + 3$
- D $y = \frac{1}{2}x + 4$

12 _____

13 Which statement about the value of $\sqrt{50}$ is true?

- A It is irrational because the decimal equivalent eventually repeats.
- B It is rational because the decimal equivalent eventually terminates.
- C It is rational because the value as a decimal is equivalent to a fraction.
- D It is irrational because the decimal equivalent is non-repeating and does not terminate.

13 _____

14 The cost of traveling an interstate highway is given by the table.

Miles	Cost
10	1.46
15	2.16
20	2.86
30	4.26

What is an equation that can represent this relationship between cost (c) and the number of miles traveled (t)?

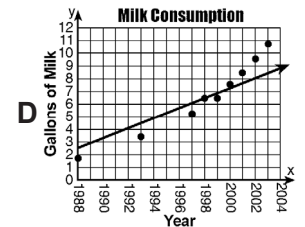
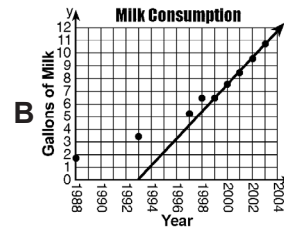
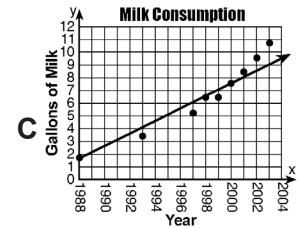
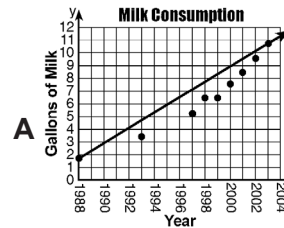
- A $c = 0.14t + 0.06$
- B $c = 0.14t + 6$
- C $c = 0.15t$
- D $c = 0.10t + 0.10$

14 _____

15 The table below shows the average amount of milk consumed per teenager between the years 1988 and 2003.

Year	1988	1993	1997	1998	1999	2000	2001	2002	2003
Milk Consumption (gallons)	1.8	3.4	5.2	6.5	6.5	7.6	8.4	9.6	10.8

Which of the following graphed lines best models the data?



15 _____

16 Which equation represents the graph of a line on a coordinate plane that passes through the x -intercept at $(9, 0)$ and the y -intercept at $(0, -5)$?

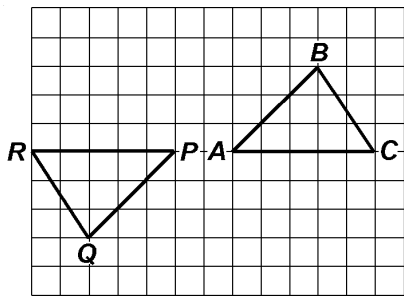
- A $y = -\frac{9}{5}x - 5$
- B $y = \frac{9}{5}x - 5$
- C $y = -\frac{5}{9}x - 5$
- D $y = \frac{5}{9}x - 5$

16 _____

Part 2 contains 6 multiple choice questions, and 9 constructed response questions. Read each question carefully and think about the answer before making your choice.

- Clearly write the appropriate letter in the space provided for the 6 multiple choice questions.
- Write your answer in space provided for the 3 one point constructed response questions.
- Show your work and write your answer in space provided for the 6 two point and 1 three point constructed response questions.
- You have been provided with mathematics tools (a ruler, a protractor, and a calculator) and a reference sheet to use during the test. It is up to you to decide when each tool and the reference sheet will be helpful. You should use mathematics tools and the reference sheet whenever you think they will help you to answer the question.

33 Triangle ABC is congruent to triangle PQR .

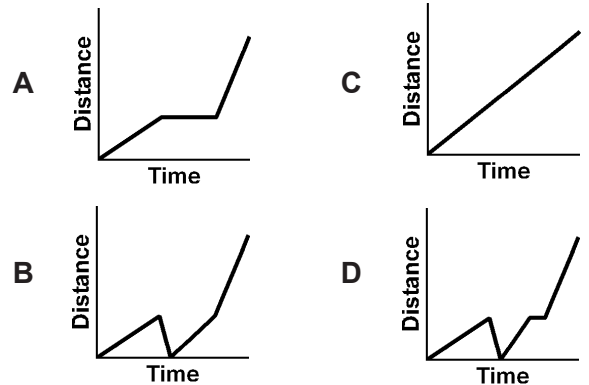


Which sequence of congruency transformations maps triangle ABC onto triangle PQR ?

- A a line reflection followed by a translation
- B a rotation of 90° clockwise about A followed by a translation
- C a point reflection followed by a translation
- D a rotation of 90° counterclockwise about A followed by a line reflection

33 _____

34 Keisha left home to walk two blocks to the school bus stop. After walking one block, she realized that she had left her soccer uniform at home. She ran home to get it and ran back to catch the bus. She only waited for one minute for the bus to arrive, then she rode the rest of the way to school. The graph of which function below correctly depicts this situation?



34 _____

39 *This question is worth 1 credit.*

Solve and check: $48 = \frac{13}{7}x + 9$

Answer: _____

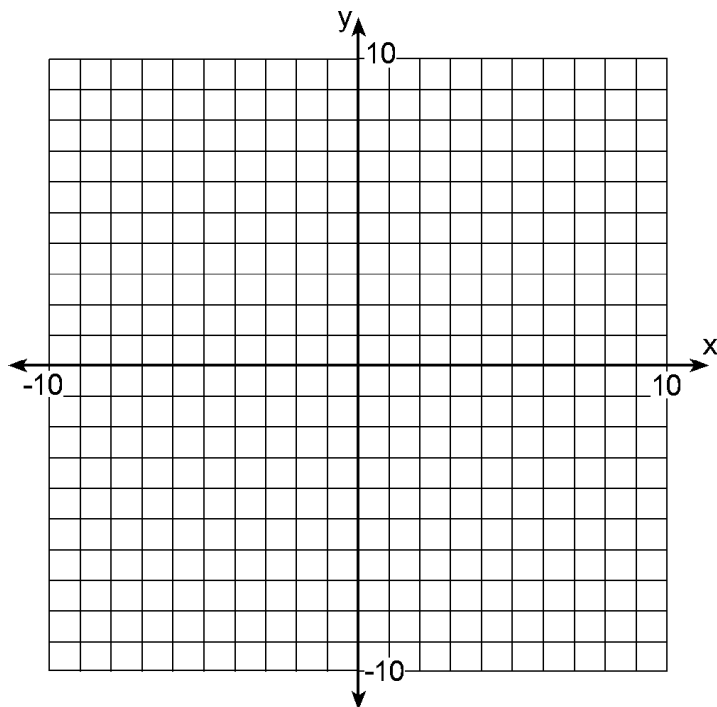
40 *This question is worth 1 credit.*

Triangle DEF is a right triangle with a right angle at vertex F. Side \overline{DF} has a length of 9 inches and side \overline{FE} has a length of 12 inches. What is the length, in inches, of side \overline{DE} ?

Answer: _____ inches

41 *This question is worth 1 credit.*

On the accompanying graph, graph and label the function $f(x) = -x + 5$.



44 *This question is worth 2 credits.*

Triangle RST has side lengths of 8 centimeters, 10 centimeters, and 13 centimeters. Is triangle RST a right triangle? Be sure to include what you know about the Pythagorean theorem in your answer.

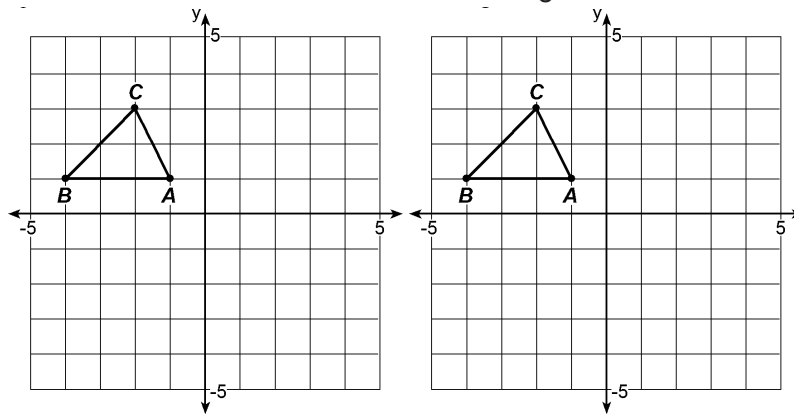
Explain how you determined your answer:

45 *This question is worth 2 credits.*

Part A

Consider a rotation of 180° about the origin and a dilation of -1 centered at the origin.

Each graph below starts with same $\triangle ABC$. On the first graph, rotate $\triangle ABC$ 180° about the origin. On the second graph, dilate $\triangle ABC$ with a $SF = -1$ centered at the origin.



Part B

Are the images formed by the rotation and the dilation of $\triangle ABC$ equivalent? *Explain your answer.*

Answer: _____

48 *This question is worth 3 credits.*

Triangle ABC has coordinates $A(1, 2)$, $B(0, 5)$, and $C(5, 4)$.

Part A

On the graph below, draw and label $\triangle ABC$.

Part B

Graph and state the coordinates of $\triangle A'B'C'$, the image of $\triangle ABC$ after the translation which maps (x, y) to $(x - 6, y + 3)$.

Part C

Graph and state the coordinates of $\triangle A''B''C''$ the image of $\triangle A'B'C'$ after a reflection in the x -axis.

Part D

Graph and state the coordinates of $\triangle ABC$, the image of $\triangle A''B''C''$ after a reflection in the origin.

