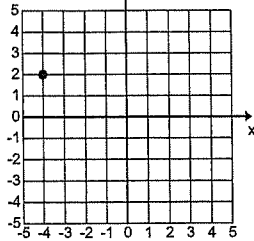


Study Guide 8<sup>th</sup> Grade Math Unit 1

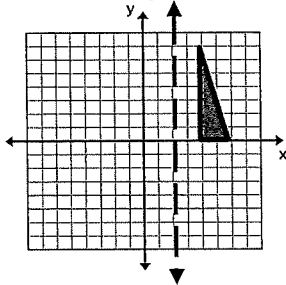
1. When the point is reflected over the  $x$ -axis, what will the new coordinates of the new point be?



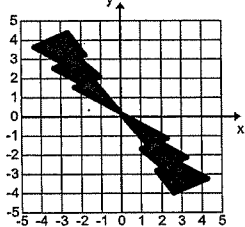
- A.  $(-4, 2)$   
 B.  $(4, 2)$   
 C.  $(-4, -2)$   
 D.  $(4, -2)$

3. What is **true** about the resulting image of a scale factor 3 dilation?

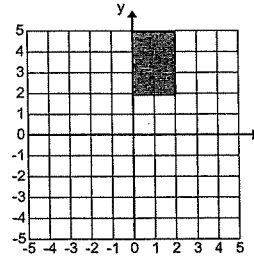
5. Reflect the image across the dotted line.



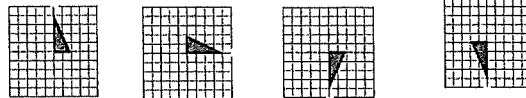
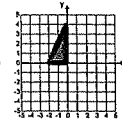
6. Dilation, reflection, rotation, or translation?



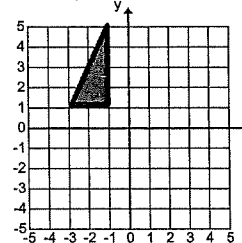
2. Translate the image left 3 and down 7.



4. Rotate the triangle 180° clockwise.



7. Reflect image over  $y$ -axis & translate 2 down.



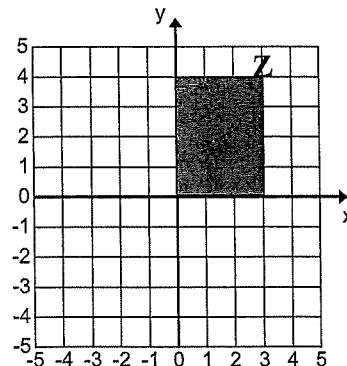
Use the graph to answer questions 8 & 9.

8. Find the coordinates of point  $Z'$  after a 90° clockwise rotation.

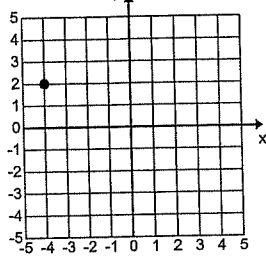
- A.  $(3, 4)$     B.  $(-3, 4)$     C.  $(4, -3)$     D.  $(-4, 3)$

9. Return to the original figure and find the coordinates of point  $Z$  after being reflected over the  $y$ -axis.

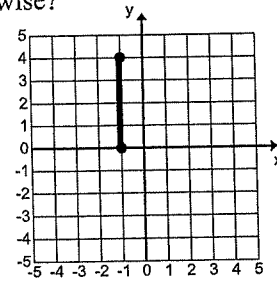
- A.  $(3, 4)$     B.  $(-3, 4)$     C.  $(4, -3)$     D.  $(-4, 3)$



10. Translate the point 3 down and 5 right. Name the coordinates of the new location.



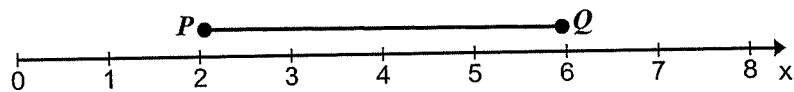
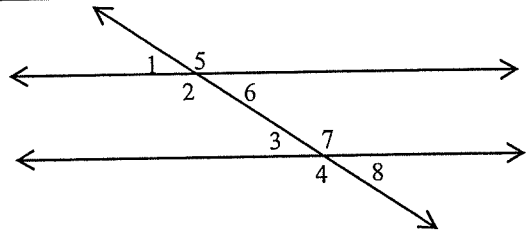
11. What will the length of the line be after it's rotated 90° clockwise?



Use the diagram to answer questions 12 and 13.

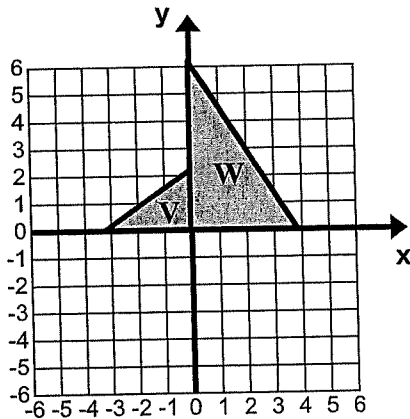
12. Name a pair of alternate exterior angles.

13. Name a pair of corresponding angles.

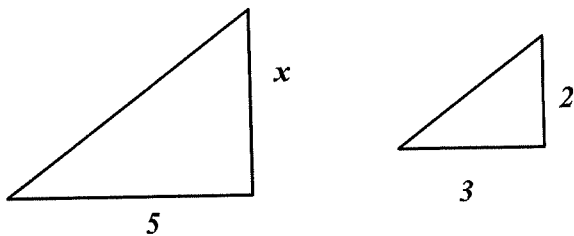


14. What will the length of line  $PQ$  be after a scale factor 2 dilation?

15. What will the length of line  $PQ$  be after a scale factor  $\frac{1}{2}$  dilation?



16. Describe the transformations that transformed triangle  $W$  to triangle  $V$ .



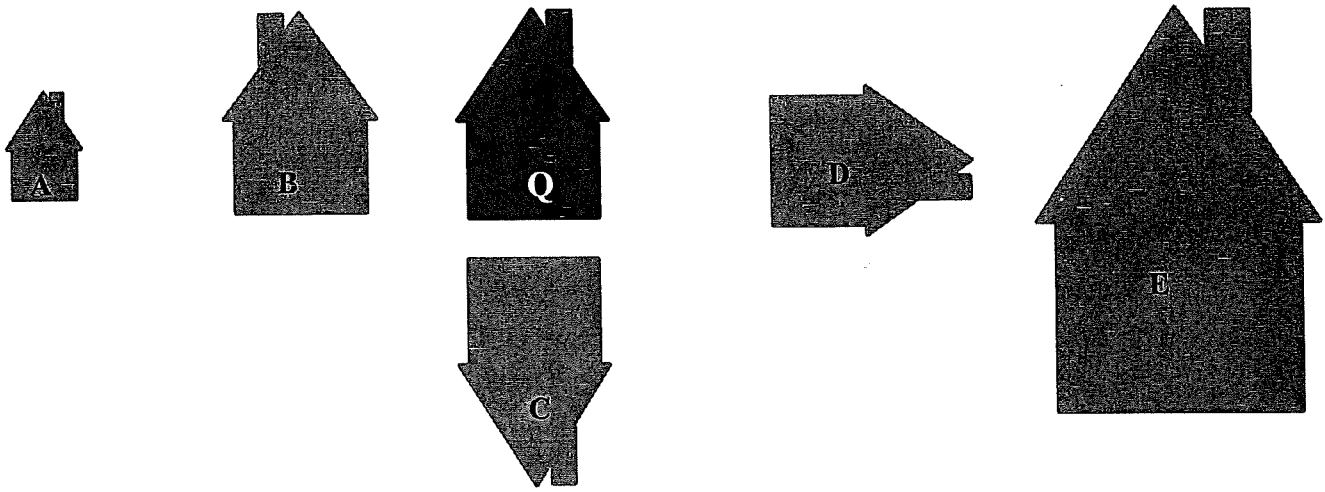
17. These are 2 similar triangles. Find  $x$ .

A.  $x = 2$

B.  $x = 2\frac{1}{2}$

C.  $3\frac{1}{3}$

D. 3

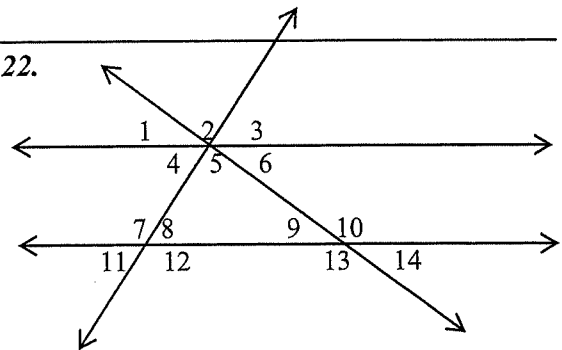


18. Figure Q is reflected across a horizontal line. Which figure is formed?  
 A. Figure A      B. Figure B      C. Figure C      D. Figure D      E. Figure E
19. Figure Q is dilated by a scale factor of 2 and translated to the right. Which figure is formed?  
 A. Figure A      B. Figure B      C. Figure C      D. Figure D      E. Figure E
20. Figure Q is rotated  $90^\circ$ . Which figure is formed?  
 A. Figure A      B. Figure B      C. Figure C      D. Figure D      E. Figure E

*Use the information and diagram below to answer question 21 & 22.*

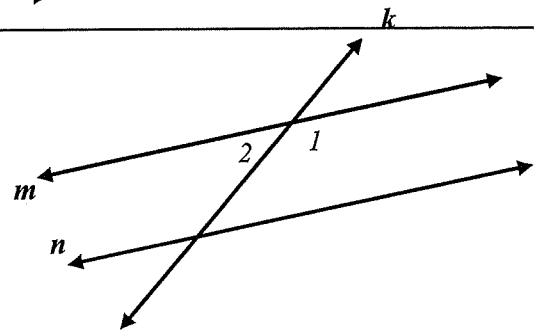
Measure of angle 4 is  $58^\circ$  and measure of angle 9 is  $50^\circ$ .

21. What is the measure of angle 5?
22. What is the measure of angle 8?



*Use the diagram on the right to answer question 23.*

23. If the measure of angle 1 =  $12x + 1$   
 and the measure of angle 2 =  $4x + 11$ ,  
 lines  $m$  and  $n$  are parallel when  $x$  equals:



Study Guide 8<sup>th</sup> Grade  
Unit 2

1. Simplify  $(x^3)^{-4} x^3$  CC.8.EE.1

---

2. Simplify  $4^2 \cdot 4^{-3}$  CC.8.EE.1

---

3. Which expression is equivalent to  $(x^4)^{-5}$  CC.8.EE.1

---

4. Solve for  $x$ .  $x^2 = 64$  CC.8.EE.2

---

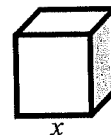
5. Solve for  $x$ :  $x^3 = 64$  CC.8.EE.2

---

6. What is the  $\sqrt{121}$ ? CC.8.EE.2

---

7. If the volume of the cube is 125 units, what is the length of side  $x$ ?



CC.8.EE.3

8. About how many times greater is 12,000 miles than  $3 \cdot 10^3$  miles? CC.8.EE.3

---

9. Evaluate.  $(1.5 \cdot 10^5)(3.18 \cdot 10^{11})$  CC.8.EE.4

---

10. Which of the following has no solution? CC.8.EE.7a

- A.  $2(x + 5) = 1 + 2x + 9$     B.  $2x - 10 = x - 5$     C.  $5x + 12 = 5(x + 4)$     D.  $2x + 10 = 4x + 2$
- 

11. Which of the following has infinite solutions? CC.8.EE.7a

- A.  $2(x + 5) = 1 + 2x + 9$     B.  $2x - 10 = x - 5$     C.  $5x + 12 = 5(x + 4)$     D.  $2x + 10 = 4x + 2$
- 

12. Find the solution to the following equation.  $6(x + 1) - 2x = 9x - 4$  CC.8.NS.7b

---

13. Evaluate  $8^3$  CC.8.EE.2

---

14. Which is an irrational number?

A.  $\frac{7}{5}$

B. 1.8

C.  $\frac{22}{7}$

D. 9.146592017492403...

CC.8.NS.1

15. Which of the following is a rational number?

CC.8.NS.1

- A. the square root of a prime number
  - B. the length of a side of a square with an area of  $25\text{cm}^2$
  - C. the non-terminating, non-repeating decimal
  - D. the length of the side of a square with an area of  $5\text{cm}^2$ .
- 

16. Which statement is **true** about the following equation?  $3(x-3) = 3x - 3$

CC.8.EE.7a

- A. The equation has 1 solution.
  - B. The equation has 2 solutions.
  - C. The equation has no solution.
  - D. The equation has infinite solutions.
- 

17. On a number line,  $\sqrt{6}$  would fall between...

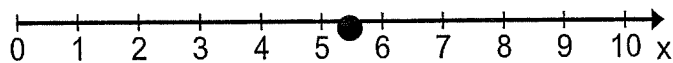
CC.8.NS.2

- A. 2.1 and 2.2
  - B. 2.4 and 2.5
  - C. 2.8 and 2.9
  - D. 3.1 and 3.2
- 

18. Estimate  $\sqrt{47}$  to the nearest tenth.

CC.8.NS.2

- A. 6.5
  - B. 6.9
  - C. 23.5
  - D. 24.5
- 



19. Match the point on the number line above to the square root below.

CC.8.NS.2

- A.  $\sqrt{5.5}$
  - B.  $\sqrt{11}$
  - C.  $\sqrt{30}$
  - D.  $\sqrt{40}$
- 

20. What is  $2.35 \cdot 10^4$  in standard form?

CC.8.EE.3

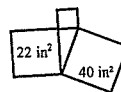
21. Write  $0.\overline{15}$  as a fraction.

22. Solve for  $x$ .  $x^2 = \frac{4}{16}$

## Study Guide 8<sup>th</sup> Grade Unit 3

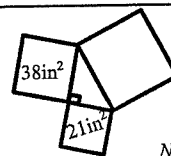
### No Calculators on 1-8

1. What is the area of the smallest square?



CC.8.G.6

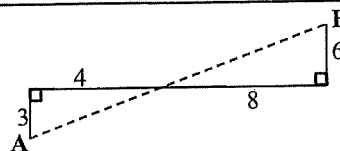
2. What is the area of the largest square?



CC.8.G.6

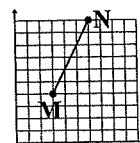
*Not drawn to scale*

3. What is the distance between Points A and B?



CC.8.G.8

4. Look at line segment MN on the graph. How many units long is line segment MN?  
Round to nearest tenth.



CC.8.G.8

5. If  $z^3 = y$ ; then  $z =$

CC.8.EE.2

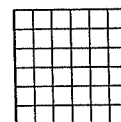
6. The model is a square with an area of 36 square units. Which of the following equation can be used to determine  $s$ , the side length of this model in units?

A.  $s = 36$

B.  $s = \sqrt{12}$

C.  $s = 6^6$

D.  $s = \sqrt{36}$



CC.8.EE.2

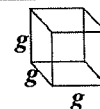
7. If the cube has a side length of  $g$ , then which expression represents the volume of the cube?

A.  $\sqrt[3]{g}$

B.  $\sqrt{g}$

C.  $g^2$

D.  $g^3$



CC.8.EE.2

8. Look at Bob's work for finding the volume of a cone with a height of 3 and a diameter of 8.  
Find his error

Bob  $\pi r^2 h$

$$3.14 \cdot 4 \cdot 4 \cdot 3$$

$$3.14 \cdot 16 \cdot 3$$

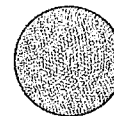
$$3.14 \cdot 48$$

$$\sqrt{= 210.72 \text{ units}^3}$$

3.14	3
$\times$ 48	
2512	
1256	
21072	

CC.8.G.9

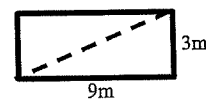
9. Find the volume of a sphere with a diameter of 8 meters.  
Leave answer in terms of pi.



CC.8.G.9

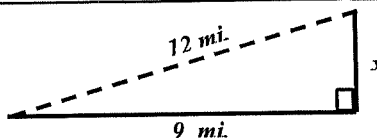
### \*\*\*Calculators allowed on 10-21\*\*\*

10. Estimate the diagonal of the rectangle .



CC.8.G.7

11. Find  $x$  .



CC.8.G.7

12. Cylinder X has a radius of 5 inches and a height of 1 inches. Cylinder Y has a radius of 1 inches and a height of 5 inches. How do they compare?  
(The one on the test has a drawing to make it easier.) CC.8.G.9
- 

13. A sphere has a radius of 8 meters. Find the volume of the sphere. Leave answer in terms of  $\pi$ . CC.8.G.9
- 

14. A cylinder has a diameter of 6 inches and a height of 8 inches. Approximately how many cubic inches will it hold? Leave answer in terms of  $\pi$ . CC.8.G.9
- 

15. What is the approximate volume of cylinder with a diameter of 6 and a height of 2?  
Use 3.14 for  $\pi$ . Round answer to the nearest tenth. CC.8.G.9
- 

16. What is the volume of a cone with a height of 4 and a diameter of 8? CC.8.G.9
- 

17. If the diagonal of the square is 6 feet, what is the measurement of the sides of the square? CC.8.G.7



18. Find the height of a cylinder that has a diameter of 12 and a volume of  $1,017.9 \text{ in}^3$  (rounded).  
(Use the pi button on the calculator.) CC.8.G.9
- 

19. Find the height of a cone that has a radius of 9 and a volume of  $108\pi \text{ ft}^3$ . CC.8.G.9
- 

20. Find the **radius** of a sphere that has a volume of  $972\pi \text{ in}^3$ . CC.8.G.9
- 

21. What is the **diameter** of the sphere in question 20? CC.8.G.9
-

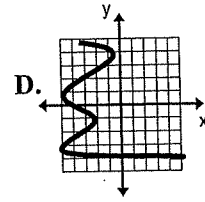
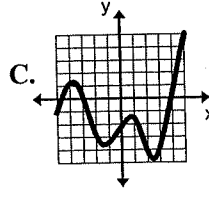
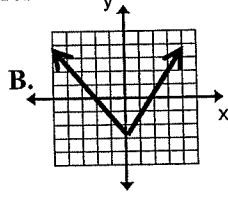
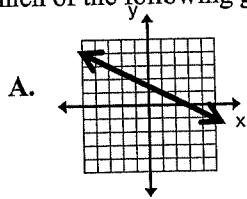
1. Which relation is a function? Why?

A.  $\{(-1,3), (-2,6), (0,0), (-2,-2)\}$

B.  $\{(-2,-2), (0,0), (1,1), (2,2)\}$

CC.8.F.1

2. Which of the following graphs represents a relation that is NOT a function of  $x$ ?



CC.8.F.1

3. Fill in the in the blanks with *always*, *sometimes*, or *never*:

"A relation is \_\_\_\_\_ a function." AND "A function is \_\_\_\_\_ a relation."

A. *sometimes*

B. *always*

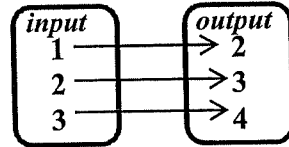
C. *never*

D. *optional*

CC.8.F.1

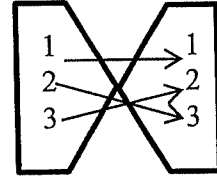
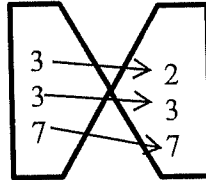
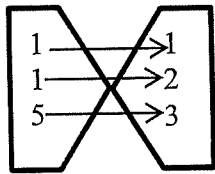
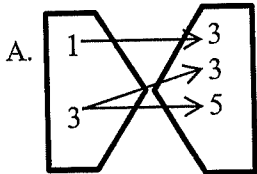
4. What error was made in the mapping of these ordered pairs?

$(1, 2), (1, 4), (2, 3), (3, 4)$



CC.8.F.1

5. Which of the following represents a function?



CC.8.F.1

6. Which relation is a function?

A. 

$x$	$y$
0	2
1	2
2	2
3	2
4	2

B. 

$x$	$y$
2	0
2	1
2	2
2	3
2	4

CC.8.F.1

CC.8.F.1

7. Which relation is a function?

A.  $\{(0,0), (1,1), (2,2), (0,3)\}$

B.  $\{(0,0), (0,1), (0,2), (0,3)\}$

C.  $\{(0,0), (0,1), (1,0), (0,2)\}$

D.  $\{(0,0), (2,0), (4,0), (6,-2)\}$

CC.8.F.1

8. Which table represents  $y$  as a function of  $x$ ?

A. 

$x$	$y$
10	1
20	2
30	3
20	4
10	5

B. 

$x$	$y$
4	1
4	2
4	3
4	4
4	5

C. 

$x$	$y$
1	8
2	8
1	9
2	9
3	8

D. 

$x$	$y$
1	3
2	3
3	3
4	3
5	3

CC.8.F.1  
CC.8.F.2