TEST NAME: **Math 8 Q4 Review test**
TEST ID: **3102147**
GRADE: **08 - Eighth Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **My Classroom**

05/09/19, Math 8 Q4 Review test

Student: _____

Class: _____

Date: _____

1. **A student concluded that $0.5(6x + 4) = 3x + 4$ has no solution. Which statement BEST describes the student's conclusion?**

   A. The conclusion is incorrect because there are two solutions to the equation.

   B. The conclusion is incorrect because there is exactly one solution to the equation.

   C. The conclusion is correct because the coefficient before the variable is equivalent.

   D. The conclusion is correct because, when simplified, both sides of the equation are equivalent.

2. Which expression is equivalent to 2^6?

   A. $(2^0)^6$

   B. $(2^3)^2$

   C. $(2^3)^3$

   D. $(2^3)^6$

3. Which expression is equivalent to $\frac{3^2 \cdot 2^4}{2^3 \cdot 3^{-4}}$?

   A. $\frac{1}{3^2 \cdot 2^4}$

   B. 6^2

   C. $\frac{3^6}{2^4}$

   D. 6^{-4}

4. Which expression is equivalent to $(7^4)^2 \bullet 7^4$?

   A. 7^{32}

   B. 7^{12}

   C. 7^{10}

   D. 7^2

5. Last year, 71,028 people attended the Superbowl. If each person spent an average of $50.00 on food and drinks, ***about*** how much money did the people spend on food and drinks at the Superbowl?

   A. 3.5×10^4

   B. 3.5×10^5

   C. 3.5×10^6

   D. 3.5×10^7

6. A race car traveled at a speed of 100 meters per second. The speed of light can be expressed as 3×10^8 meters per second. ***Approximately*** how much faster is the speed of light than the race car?

   A. 30,000 times faster

   B. 300,000 times faster

   C. 3,000,000 times faster

   D. 30,000,000 times faster

7. **The Sun has a diameter of approximately 1,390,000 kilometers. How is the approximate diameter of the Sun expressed in scientific notation?**

   A. 1.39×10^{-6}

   B. 13.9×10^{-6}

   C. 1.39×10^{6}

   D. 13.9×10^{6}

8. Which expression is equivalent to $(4 \times 10^6)(1.03)$?

A. 2.4×10^5

B. 2.4×10^6

C. 4.12×10^6

D. 4.12×10^7

9. Suppose an asteroid has a circumference of 1.276×10^7 inches. Another asteroid has a circumference that is about 2.5×10^3 times larger than the first asteroid's circumference. What is the ***approximate*** circumference of the second asteroid?

A. 3.19×10^1 inches

B. 3.19×10^4 inches

C. 3.19×10^{10} inches

D. 3.19×10^{21} inches

10. **The mass of Earth is 6×10^{24} kilograms, of which 1.4×10^{21} kilograms comes from its oceans. The mass of Earth's oceans is closest to what percentage of the mass of Earth?**

A. 0.23%

B. 0.43%

C. 0.023%

D. 0.043%

11. A linear function passes through the points $(^{-}3, 1)$ and $(1, ^{-}2)$. A second linear function is represented by the equation $y = ^{-}2x - 1$. What is the difference between the y-intercepts of the two functions?

A. $\frac{1}{4}$

B. $\frac{3}{4}$

C. $\frac{5}{4}$

D. $\frac{9}{4}$

12. To put an ad in Newspaper *M*, the newspaper company charges a flat fee of $4.50, plus $0.15 per word. Newspaper *N* uses the table below to calculate the cost of an ad.

Number of Words in Ad (x)	**Cost** (y)
15	$7.75
25	$9.75
40	$12.75

Which newspaper charges the least amount per word and by how much?

A. Newspaper *M*, $0.05

B. Newspaper *N*, $0.05

C. Newspaper *M*, $0.25

D. Newspaper *N*, $0.25

13. Tom's Lawn Maintenance company charges a flat fee of $20 for a service call, plus $9.50 per hour to cut grass. Rachel's Lawn Maintenance company uses the table below to determine the total cost of cutting grass.

Rachel's Lawn Maintenance

Number of Hours (x)	**Total Cost** (y)
1	$27.50
3	$47.50
5	$67.50
7	$87.50

Which lawn maintenance company charges less for a service call, and by how much less?

A. Tom's Lawn Maintenance company charges $2.50 less for the service call.

B. Rachel's Lawn Maintenance company charges $2.50 less for the service call.

C. Tom's Lawn Maintenance company charges $0.50 less for the service call.

D. Rachel's Lawn Maintenance company charges $0.50 less for the service call.

14. Which equation represents a linear function?

A. $x = 4$

B. $y = 3x$

C. $y = 3x^2$

D. $y = 3^x$

15. In which table is y a linear function of x?

A.

x	*y*
0	0
2	4
$^{-}2$	4

B.

x	*y*
0	0
1	1
$^{-}2$	2

C.

x	*y*
0	$^{-}4$
2	$^{-}3$
$^{-}4$	$^{-}6$

D.

x	*y*
0	0
1	2
1	3

16. Which function is non-linear?

A.

x	*y*
0	0
2	4
3	9

B.

x	*y*
2	1
4	3
6	5

C. $y = 4$

D. $2x - 4y = 15$

17. **What is the equation of a line with a *y*-intercept of −5 and a slope of 8?**

A. $y = 8x + 5$

B. $y = 8x - 5$

C. $y = -5x + 8$

D. $y = -5x - 8$

18. **Which statement about the graph of $y = 3x + 5$ is correct?**

A. The line passes through the ordered pair $(3, 14)$ and has a slope of $\frac{3}{5}$.

B. The line passes through the ordered pair $(0, 5)$ and has a slope of 3.

C. The line passes through the ordered pair $(3, 0)$ and has a slope of 5.

D. The line passes through the ordered pair $(5, 20)$ and has a slope of $\frac{5}{3}$.

19. **What is the equation of the line that passes through the point $(-4, -3)$ and has a slope of 5?**

A. $y = 5x - 17$

B. $y = 5x - 11$

C. $y = 5x + 11$

D. $y = 5x + 17$

20. **Which equation BEST represents this set of data?**

X	Y
–7	–10
–2	–5
3	0
0	–3

A. $y = x - 5$

B. $y = x - 3$

C. $y = x + 3$

D. $y = x + 5$

21. **Which function is represented by the table of values below?**

x	*y*
0	1
1	0
2	–1
3	–2
4	–3
5	–4
6	–5

A.

B.

C.

D.

22. **Which equation BEST describes the relationship between the number of fish caught and the hours that were spent fishing?**

Fishing Log

X (Hours)	*Y* (Fish)
1	4
3	8
5	12
8	18
10	22
15	32

A. $y = x - 3$

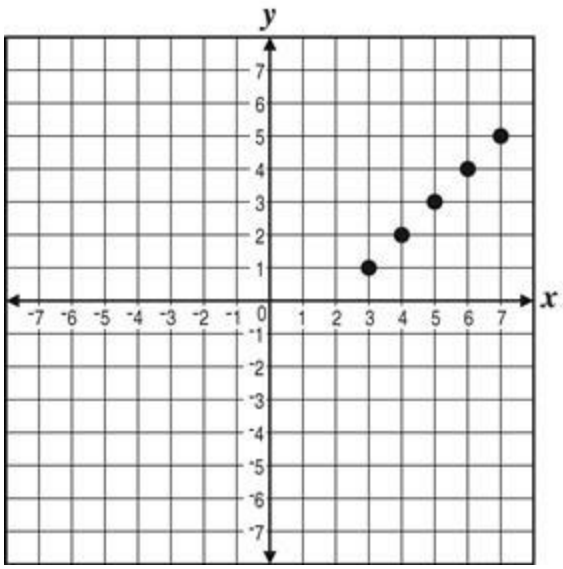
B. $y = x + 3$

C. $y = 2x - 1$

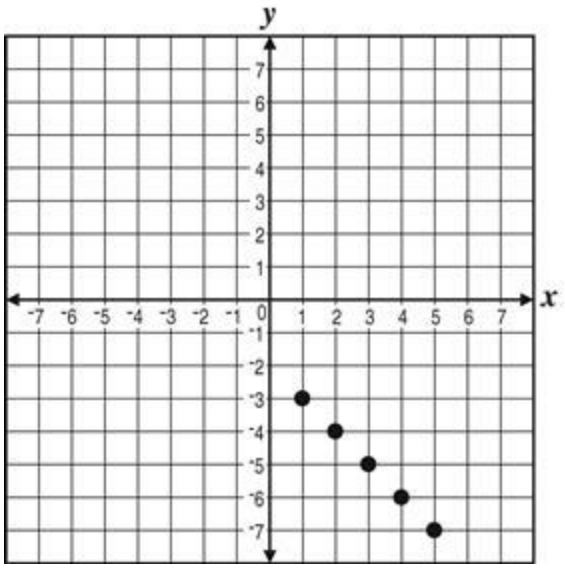
D. $y = 2x + 2$

23. **Which graph shows points that correspond to the equation** $y = x + 2$?

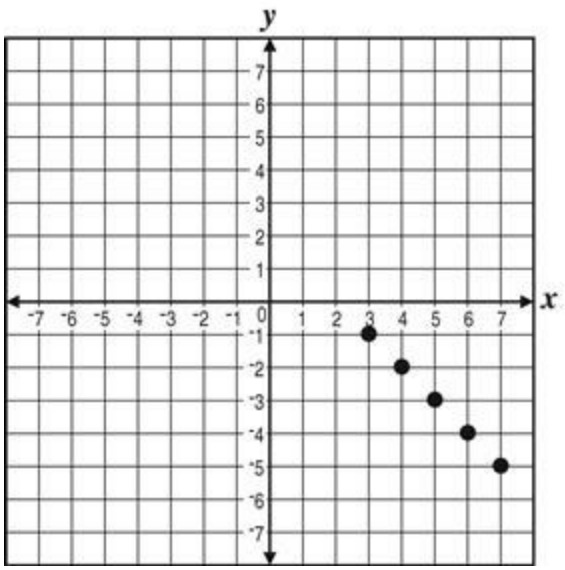
A.



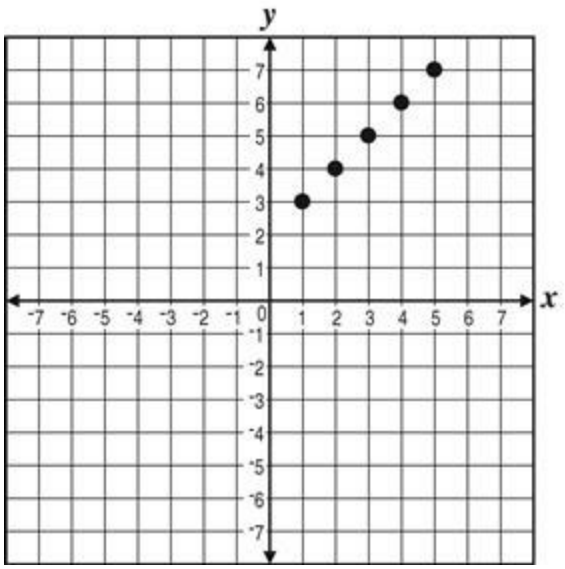
B.



C.

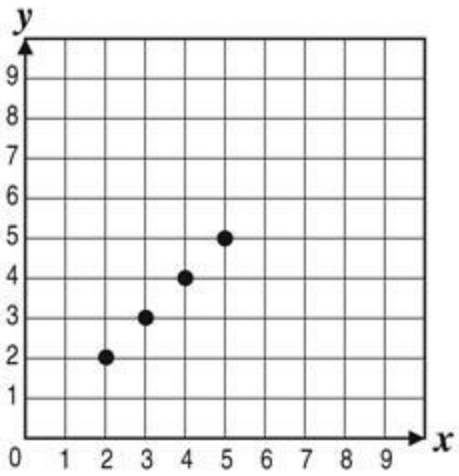


D.

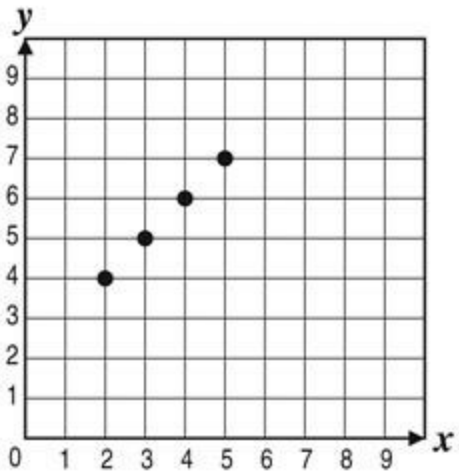


24. **Which graph represents four ordered pair solutions for the equation $y = x + 2$?**

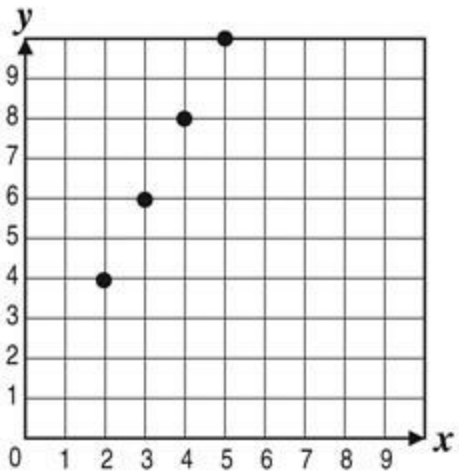
A.



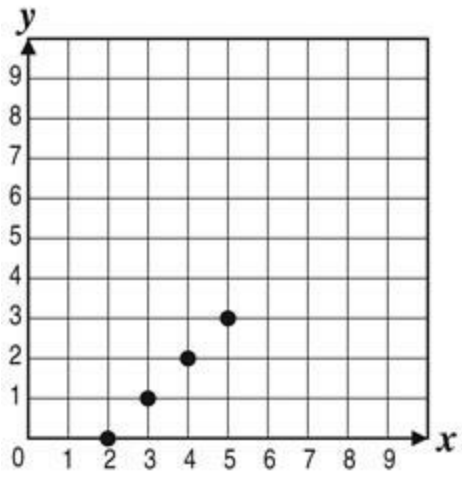
B.



C.

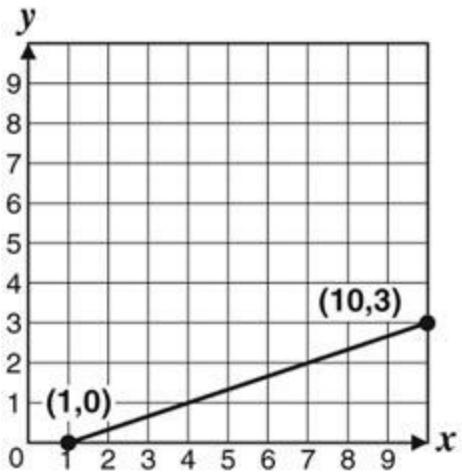


D.

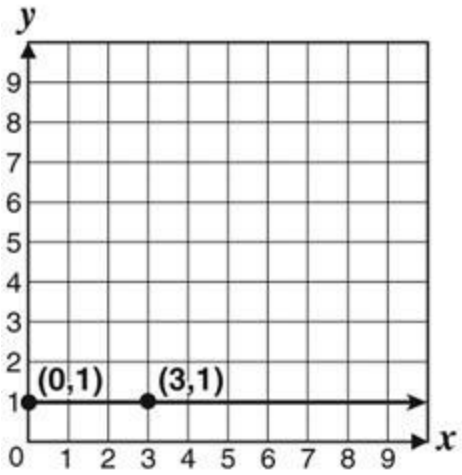


25. **Which graph shows the line** $y = 3x + 1$ **?**

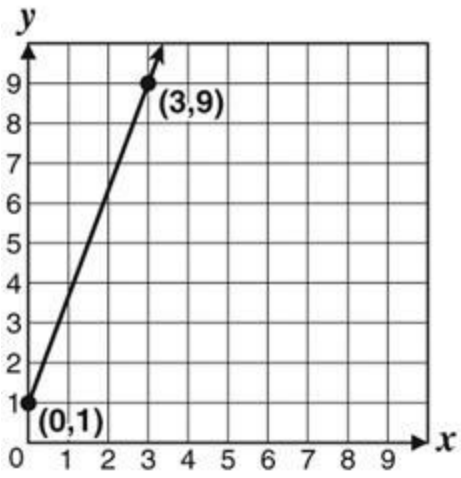
A.



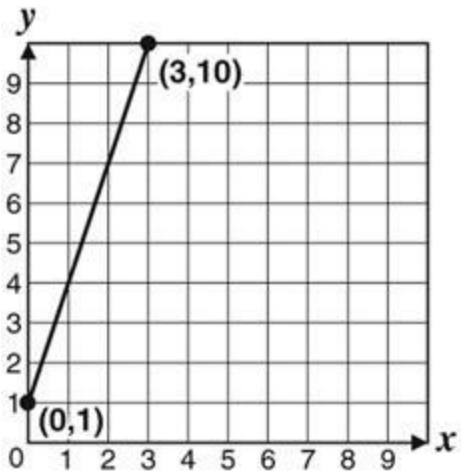
B.



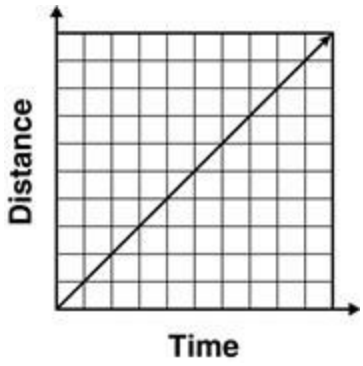
C.



D.

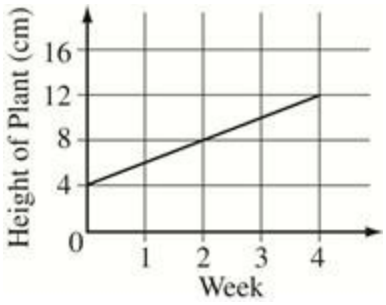


26. **What does the slope of the line in the coordinate plane below represent?**



A. time per unit of speed
B. distance per unit of time
C. time per unit of distance
D. distance per unit of speed

27. **The height of a plant over 4 weeks is shown in the graph below.**



What is the rate of growth of the plant, in centimeters per week?

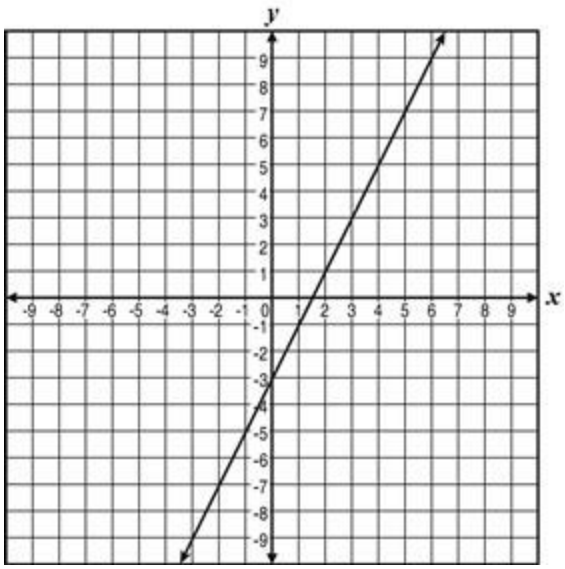
A. 2

B. 3

C. 8

D. 12

28. **The graph of $y = 2x - 3$ is shown below.**



What will be the effect on the graph of changing the 2 in the equation to $\frac{1}{2}$?

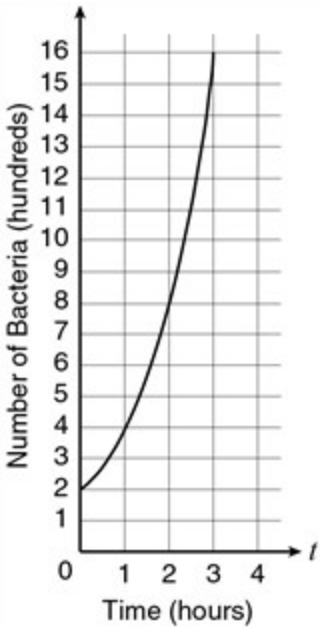
A. The line will become flatter.

B. The line will become steeper.

C. The line will cross the y–axis $\frac{1}{2}$.

D. The line will cross the x–axis $\frac{1}{2}$.

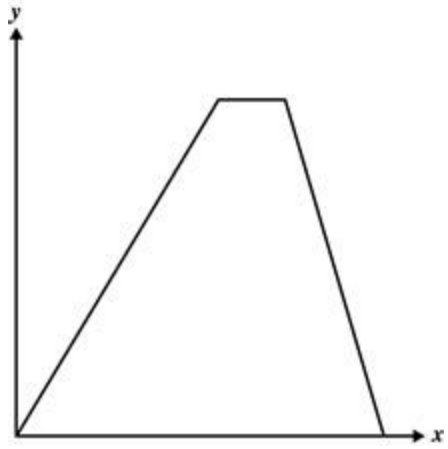
29. **The graph below shows the growth of bacteria over time.**



How many bacteria were present when ☐

A. 200
B. 400
C. 800
D. 1600

30. **The graph below shows the relationship between two variables.**



Which scenario is BEST represented by the graph?

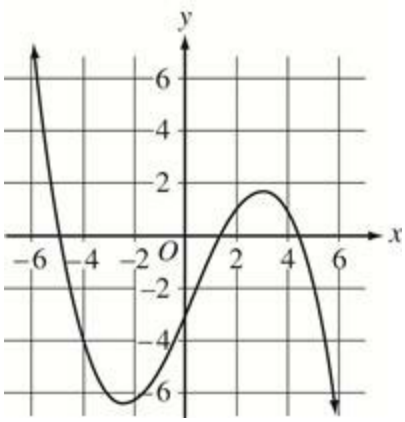
A. The value of a car decreased at a constant rate, remained constant for a while, and then began to increase.

B. The number of animals in the local zoo increased at a constant rate over the first ten years after the zoo opened.

C. The average rainfall in a town was constant for the first 4 months of the year. Over the next 6 months it increased and then gradually decreased.

D. The number of customers in a diner increased at a constant rate during the morning hours, remained the same during lunch, and decreased during the afternoon hours.

31. **The graph of $y = f(x)$ is shown below.**



For what value of x does $y = x$?

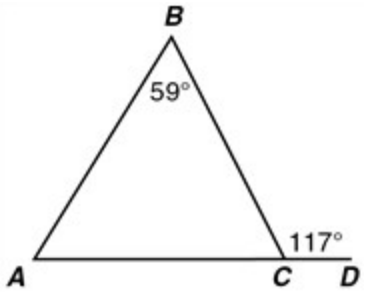
A. −5

B.

C.

D.

32. **What theorem can be used alone to find the measure of $\angle A$ in $\triangle ABC$?**



A. the Supplementary Angle Theorem

B. the Exterior Angle Theorem

C. the Triangle Sum Theorem

D. the Pythagorean Theorem

33. **Which of the following could NOT be the measures of the angles of a triangle?**

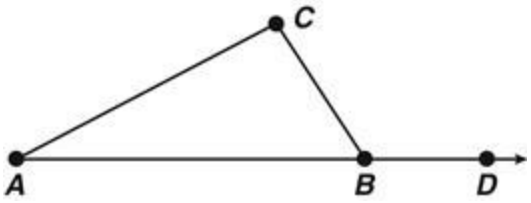
A. 30°-120°-30°

B. 40°-40°-100°

C. 60°-60°-60°

D. 70°-50°-70°

34. **Given $\triangle ABC$ and point *D* on $\overrightarrow{AB}$, which of the following statements is correct?**



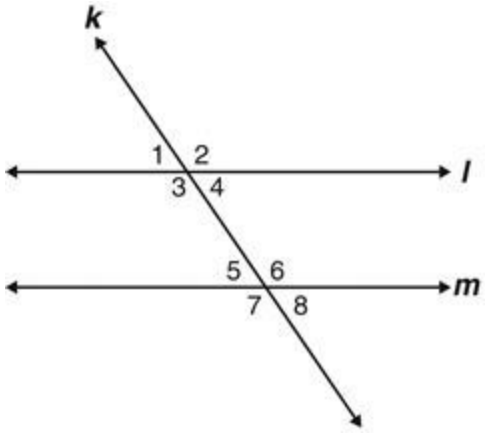
A. $\angle CBD$ is congruent to $\angle ACB$.

B. $\angle CBD$ is complementary to $\angle ABC$.

C. The measure of $\angle CBD$ is the sum of the measures of $\angle BAC$ and $\angle ACB$.

D. The measure of $\angle CBD$ is the sum of the measures of $\angle BAC$ and $\angle ABC$.

35. **In the diagram below, parallel lines *l* and *m* are cut by transversal *k*.**



Which pair of angles represents alternate interior angles?

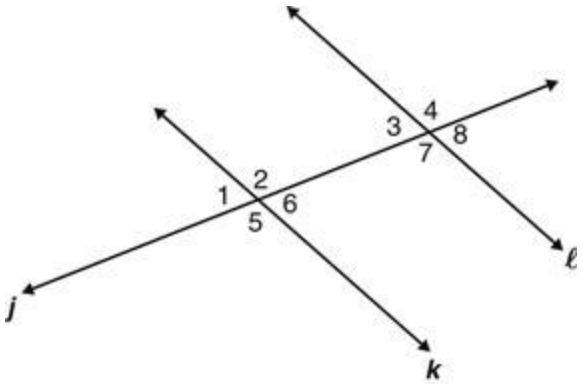
A. $\angle 1$ and $\angle 4$

B. $\angle 2$ and $\angle 7$

C. $\angle 3$ and $\angle 6$

D. $\angle 5$ and $\angle 8$

36. **Lines *k* and *l* are parallel and cut by transversal *j*.**



Which statement is a valid conclusion?

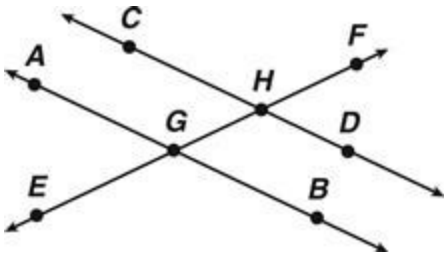
A. $\angle 4$ and $\angle 8$ form a linear pair

B. $\angle 2$ and $\angle 7$ form vertical angles

C. $\angle 6$ and $\angle 7$ are complementary

D. $\angle 1$and $\angle 2$ are congruent

37. **In the diagram, which condition ensures that lines $\overleftrightarrow{AB}$ and $\overleftrightarrow{CD}$ are parallel?**



A. $\angle AGE$ is the supplement of $\angle EGB$.

B. $\angle CHF$ is the supplement of $\angle DHF$.

C. $\angle AGE$ is congruent to $\angle BGH$.

D. $\angle AGE$ is congruent to $\angle DHF$.

38. **Triangle *ABC* has Vertices *A*(1, 2), *B*(3, 5), and *C*(4, 3). Using the origin as the center of dilation, Triangle *ABC* is dilated by a scale factor of 3 to create Triangle $A'B'C'$. Which statement can be used to justify that Triangle *ABC* is similar to Triangle $A'B'C'$?**

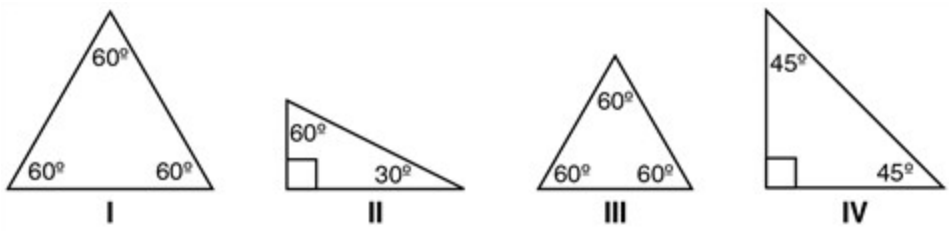
A. $\overline{AB} \cong \overline{A'B'}$ and $\overline{BC} \cong \overline{B'C'}$

B. $\angle A \cong \angle A'$ and $\angle B \cong \angle B'$

C. The sum of the angles of each triangle remains 180 degrees.

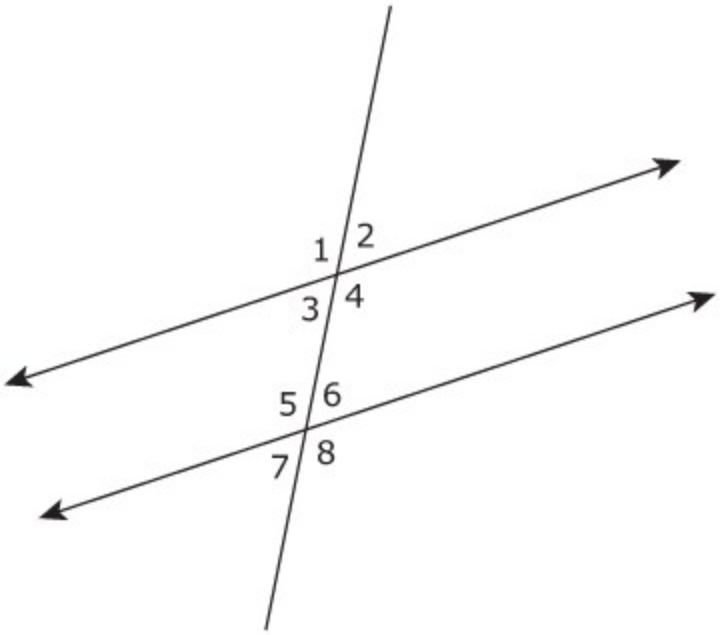
D. The area of Triangle $A'B'C'$ is 3 times the area of Triangle *ABC*.

39. **Which of the four triangles below are similar?**



A. I and II
B. II and III
C. II and IV
D. III and I

40. The diagram shows two parallel lines cut by a transversal line segment.



Which relationship is true?

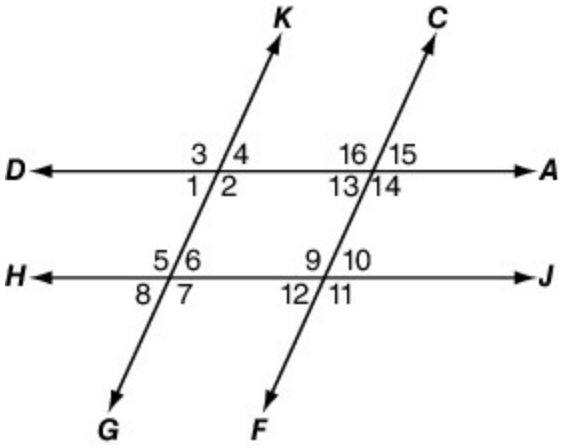
A. $m\angle 1 + m\angle 8 = 90^o$

B. $m\angle 3 + m\angle 5 = 180^o$

C. $\angle 1 \cong \angle 7$

D. $\angle 2 \cong \angle 4$

41. In the figure below, line AD is parallel to line HJ and line GK is parallel to line CF.



Which argument **correctly** explains why $m\angle 3 = m\angle 9$?

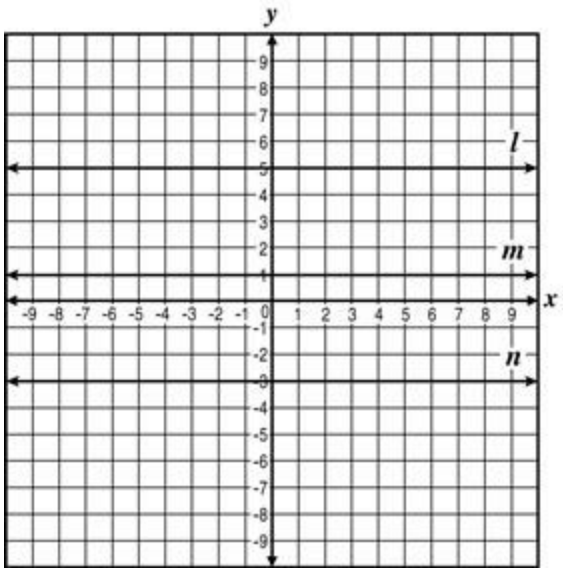
A. $m\angle 3 = m\angle 15$, as they are exterior angles
$m\angle 15 = m\angle 10$, as they are corresponding angles
$m\angle 10 = m\angle 9$, as they are supplementary angles

B. $m\angle 3 = m\angle 8$, as they are vertical angles
$m\angle 8 = m\angle 12$, as they are corresponding angles
$m\angle 12 = m\angle 9$, as they are adjacent angles

C. $m\angle 3 = m\angle 4$, as they are adjacent angles
$m\angle 4 = m\angle 2$, as they are supplementary angles
$m\angle 2 = m\angle 9$, as they are alternate interior angles

D. $m\angle 3 = m\angle 2$, as they are vertical angles
$m\angle 2 = m\angle 16$, as they are alternate interior angles
$m\angle 16 = m\angle 9$, as they are corresponding angles

42. **Parallel lines *l*, *m*, and *n* are shown.**



If line *l* is mapped to line *m* and line *m* is mapped to line *n*, what is true for the transformation that took place?

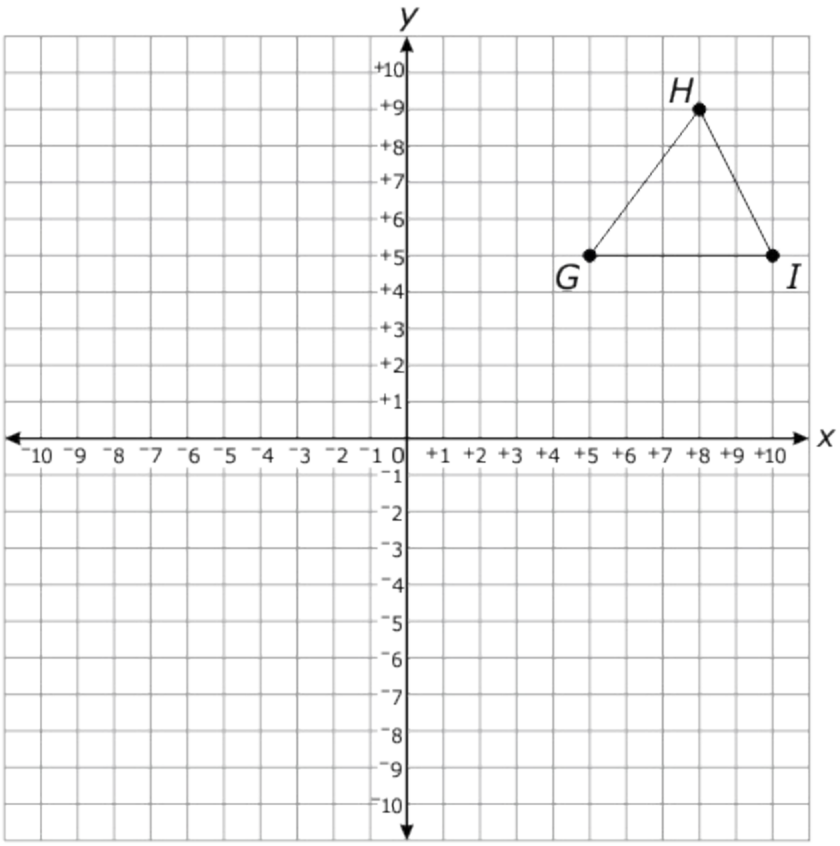
A. Line *n* was translated up 8 units.

B. Line *m* was translated up 4 units.

C. Line *l* was translated down 8 units.

D. Line *m* was translated down 4 units.

43. Triangle *GHI* is graphed below.



The coordinates of *GHI* after a transformation are *G*′(−5, −5), *H*′(−8, −9), and *I*′(−10, −5). Which transformation occurred?

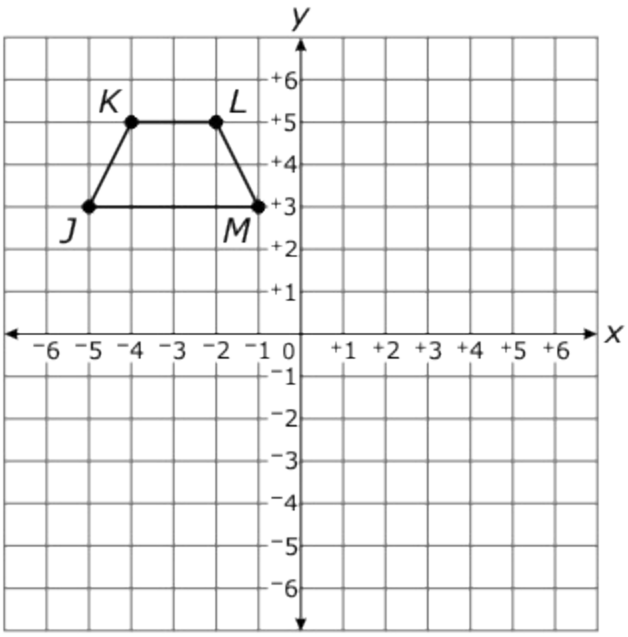
A. a rotation 180° counterclockwise about the origin

B. a rotation 90° clockwise about the origin

C. a reflection about the *x*-axis

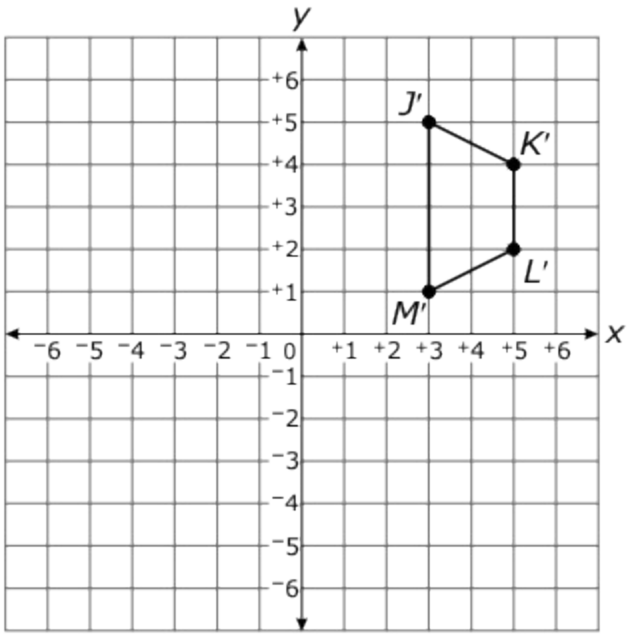
D. a reflection about the *y*-axis

44. Trapezoid *JKLM* below will be rotated 270 degrees counterclockwise.

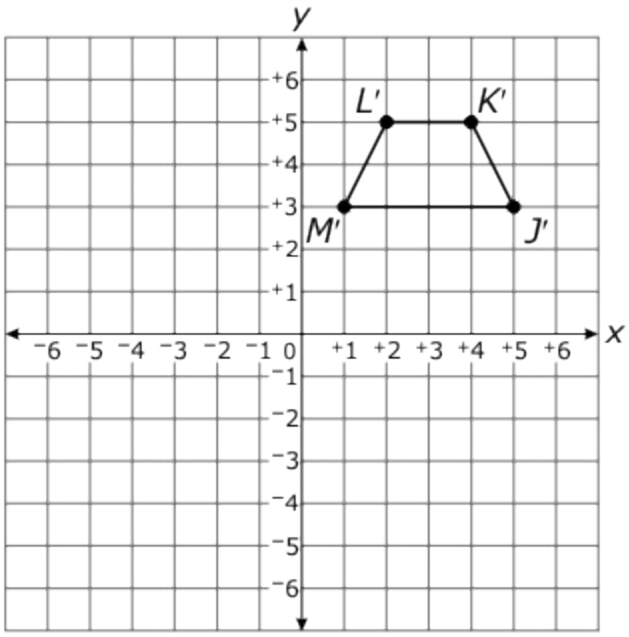


Which graph shows trapezoid $J'K'L'M'$?

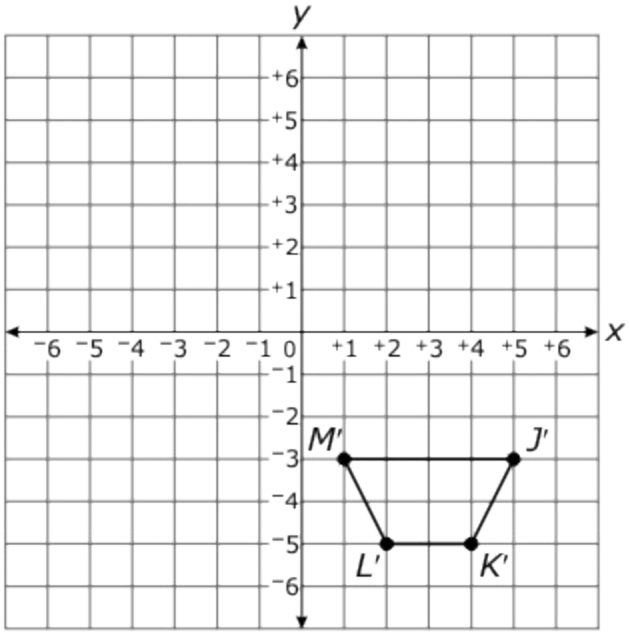
A.



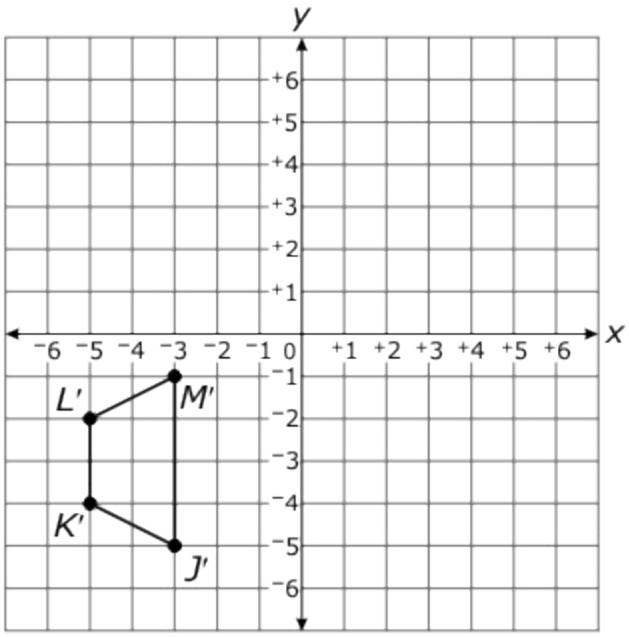
B.



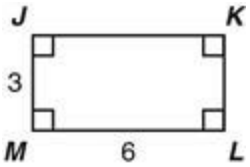
C.



D.



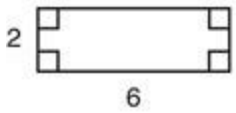
45. **Rectangle *JKLM* is shown.**



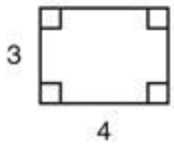
Which figure is a dilation of Rectangle *JKLM* with a scale factor of $\frac{2}{3}$?

A.

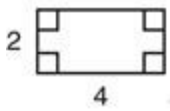
B.



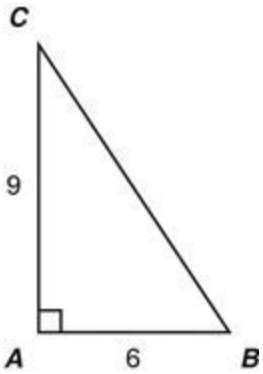
C.

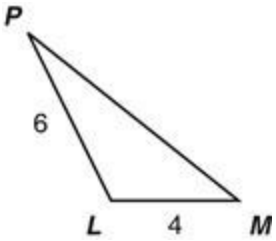


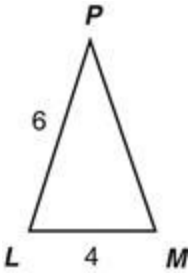
D.

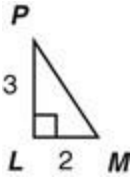


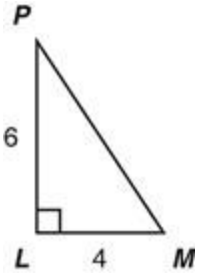
46. **Which is a dilation of $\triangle ABC$ with a scale factor of $\frac{2}{3}$?**



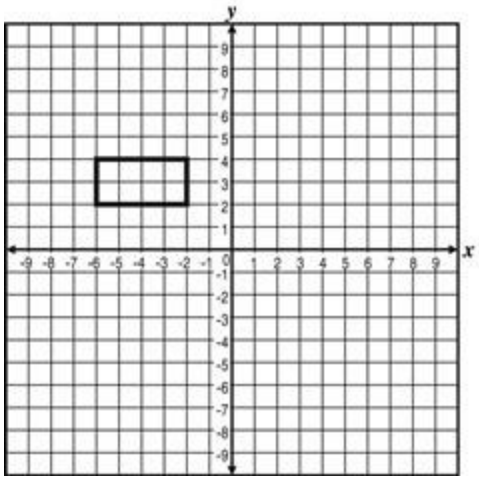
A.


B.


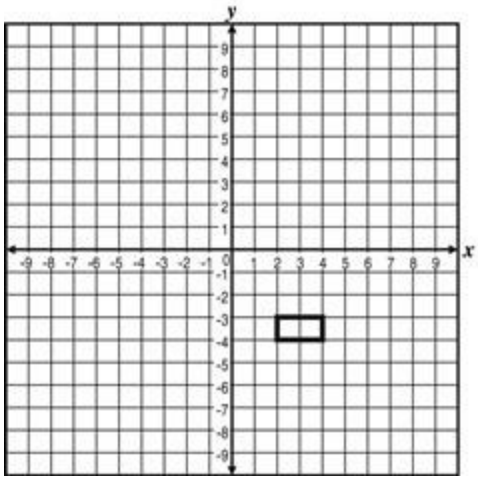
C.


D.


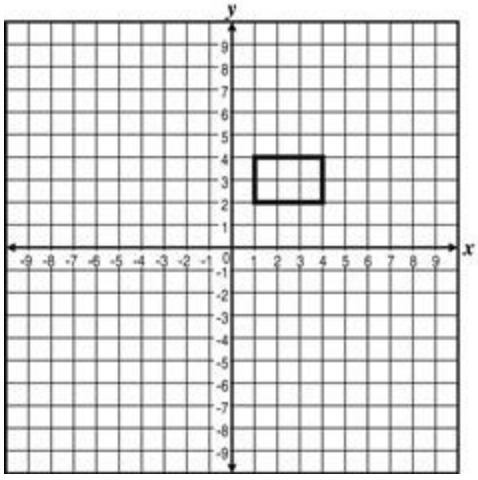
47. **Which graph shows a rectangle similar to the rectangle below?**



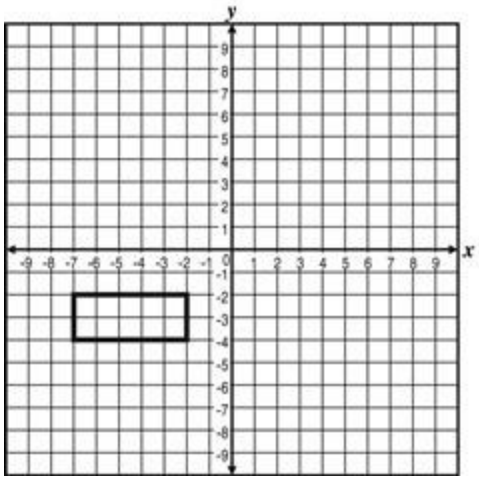
A.



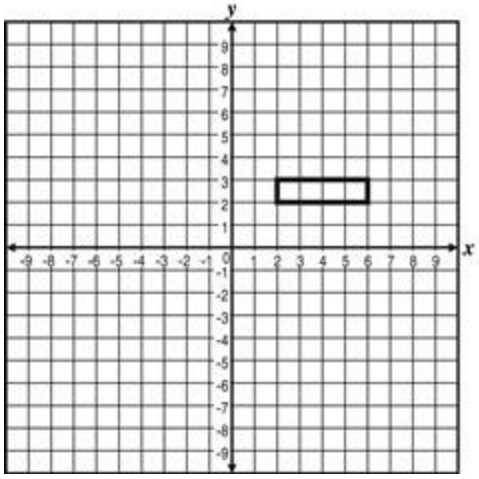
B.



C.



D.



48. Which choice is equivalent to $0.\overline{81}$?

A. $\frac{81}{100}$

B. $\frac{8}{10}$

C. $\frac{818}{999}$

D. $\frac{81}{99}$

49. The number $0.\overline{455}$ is what kind of number?

A. integer

B. irrational

C. natural

D. rational

50. Which choice is an irrational number?

A. $\frac{4\pi}{\pi}$

B. $\sqrt{6^2}$

C. $\sqrt{18}$

D. 21.989

51. Which set of numbers are all irrational?

A. $\{\sqrt{28}, \sqrt{36}, \sqrt{48}\}$

B. $\{\sqrt{24}, \sqrt{21}, \sqrt{15}\}$

C. $\{\sqrt{35}, \sqrt{39}, \sqrt{49}\}$

D. $\{\sqrt{64}, \sqrt{56}, \sqrt{42}\}$

52. **The value of $\sqrt{71}$ is between what two numbers?**

A. between 4 and 5

B. between 8 and 9

C. between 35 and 36

D. between 70 and 72

53. **The value of $\sqrt{45}$ is between what two numbers?**

A. between 3 and 4

B. between 6 and 7

C. between 22 and 23

D. between 44 and 46