



# CHANNEL VIEW

An Expeditionary Learning School



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*Santa Gonzalez, Assistant Principal*

June 2019  
**Geometry**  
**(212, 302, 401, 403, 404)**

Dear Parents:

In our effort to academically prepare your child for the coming school year, the math teachers at Channel View School for Research have prepared a math packet for the summer vacation to help your child reinforce and maintain his/her math skills.

Students are expected to complete all assigned work in the packet. Parents are asked to certify that their child completed the assignment. The math packet will be collected, scored, and reviewed in class. The completed math packet is due to your child's math teacher on the first day of school, **Thursday, September 5, 2019.**

Working together we can insure maximum success for your child. Your cooperation in this matter is appreciated.

We wish you a happy and healthy summer.

Sincerely,

Mrs. Harper-Richardson  
Principal

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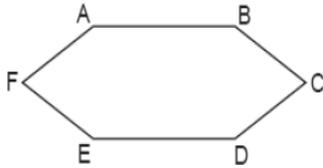
I certify that my child has completed the required 2019 Summer Vacation Math Assignment.

Student's Name \_\_\_\_\_ Entering Grade \_\_\_\_\_

Parent's Signature \_\_\_\_\_ Date \_\_\_\_\_

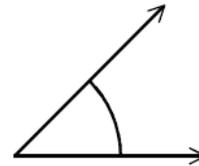
Name \_\_\_\_\_

1. Which type of figure is shown in the accompanying diagram?



- A. octagon                      B. quadrilateral  
C. pentagon                      D. hexagon

4. Estimate the measure of the angle.



- A. about  $65^\circ$                       B. about  $25^\circ$   
C. about  $45^\circ$                       D. about  $180^\circ$

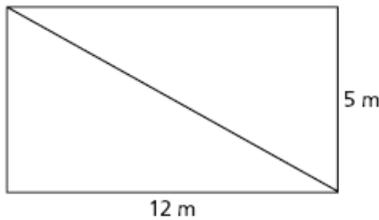
2. The measure of angle  $B$  is  $136^\circ$ . Classify angle  $B$ .

- A right                      B obtuse  
C straight                      D acute

5. Which equation represents a line that is parallel to the  $y$ -axis?

- A.  $x = 5$   
B.  $x = 5y$   
C.  $y = 5$   
D.  $y = 5x$

3. Mr. Sanders used a diagonal board to divide a rectangular garden into two equal sections as shown in the diagram below.

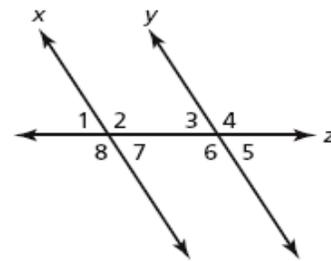


[not drawn to scale]

What is the length of the diagonal?

- A. 12 meters                      B. 13 meters  
C. 14 meters                      D. 15 meters

6. In the diagram below, line  $x$  is parallel to line  $y$ , and line  $z$  is a transversal.



[not drawn to scale]

Which angles are alternate interior angles?

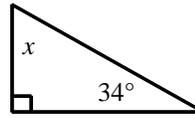
- A.  $\angle 1$  and  $\angle 7$                       B.  $\angle 3$  and  $\angle 7$   
C.  $\angle 2$  and  $\angle 3$                       D.  $\angle 4$  and  $\angle 8$

7. Solve the equation below for  $x$ .

$$9(x - 5) = 4x - 5$$

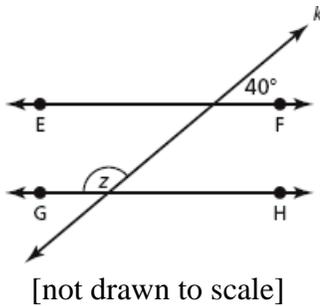
- A. 8                      B. 10  
C. -8                      D. -10

10. What is the measure of angle  $x$ ?



- A.  $124^\circ$               B.  $146^\circ$   
C.  $56^\circ$                 D.  $112^\circ$

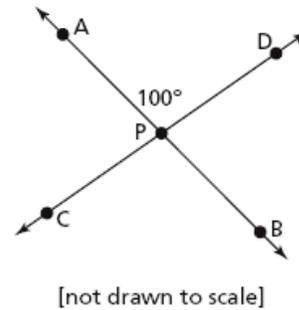
8. In the diagram below,  $\overleftrightarrow{EF}$  is parallel to  $\overleftrightarrow{GH}$ , and line  $k$  intersects both lines.



What is the measure of  $\angle z$ ?

- A.  $40^\circ$                 B.  $50^\circ$   
C.  $130^\circ$               D.  $140^\circ$

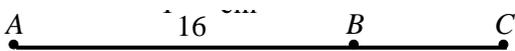
11. In the diagram below, line  $AB$  intersects line  $DC$  at point  $P$ .



What is the measure of  $\angle CPB$  in the figure?

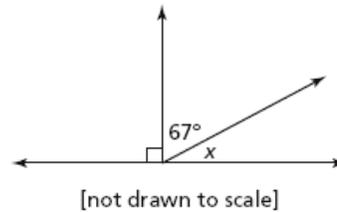
- A.  $80^\circ$                 B.  $90^\circ$   
C.  $100^\circ$               D.  $105^\circ$

9. If  $AB = 53$  and  $AC = 81$ , find  $BC$ .



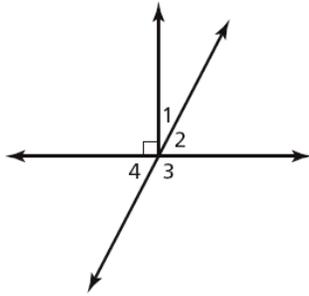
- A. 53                      B. 134  
C. 28                      D. 32

12. What is the measure of  $\angle x$  in the diagram shown below?



- A.  $23^\circ$                 B.  $33^\circ$   
C.  $113^\circ$               D.  $157^\circ$

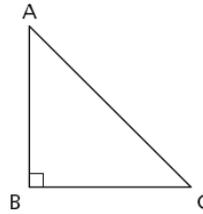
13. In the diagram below, which pair of angles is complementary?



[not drawn to scale]

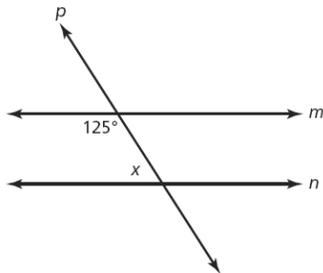
- A.  $\angle 1$  and  $\angle 2$       B.  $\angle 2$  and  $\angle 3$   
 C.  $\angle 2$  and  $\angle 4$       D.  $\angle 3$  and  $\angle 4$

16. Which term best describes AC in the right triangle shown below?



- A. leg                                  B. base  
 C. altitude                          D. hypotenuse

14. In the diagram below, line m and line n are parallel, and line p is a transversal.

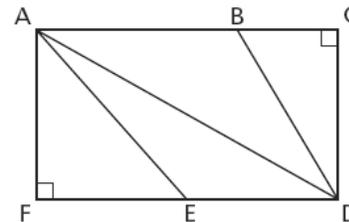


[not drawn to scale]

What is the measure of  $\angle x$  ?

- A.  $35^\circ$                       B.  $55^\circ$   
 C.  $125^\circ$                     D.  $215^\circ$

17. In the rectangle below, which angle is the right angle of a right triangle?



[not drawn to scale]

- A.  $\angle BCD$                       B.  $\angle AED$   
 C.  $\angle CDA$                       D.  $\angle FAD$

15. What is the slope of a line perpendicular to the line whose equation is  $y = 3x + 4$ ?

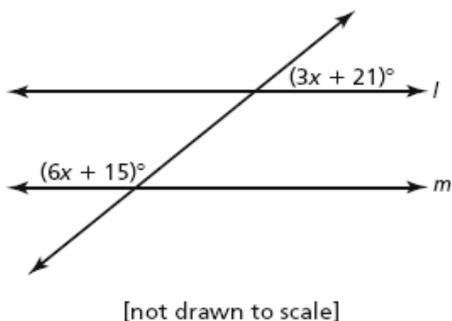
- A.  $\frac{1}{3}$                           B.  $-\frac{1}{3}$   
 C. 3                              D. -3

18. What is an equation of the line that passes through the point  $(-2,5)$  and is perpendicular to the line whose equation is

$$y = \frac{1}{2}x + 5$$

- A.  $y = 2x + 1$                   B.  $y = -2x + 1$   
 C.  $y = 2x + 9$                   D.  $y = -2x + 9$

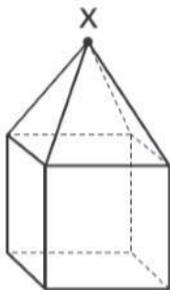
19. In the diagram below, line  $l$  and line  $m$  are parallel.



Which equation could be used to solve for  $x$  ?

- A.  $6x + 3x = 15 + 21$
- B.  $6x + 15 = 3x + 21$
- C.  $6x + 15 + 3x + 21 = 90$
- D.  $6x + 15 + 3x + 21 = 180$

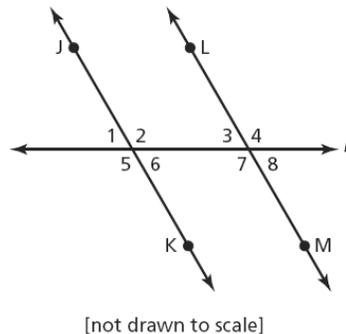
20. The figure shown below consists of a square pyramid on top of a cube. A vertical plane passes through point  $X$  and is perpendicular to the bases of both shapes, slicing the figure into equal halves.



What shape is created by the intersection of the vertical plane and these three-dimensional shapes?

- A square
- B triangle
- C hexagon
- D pentagon

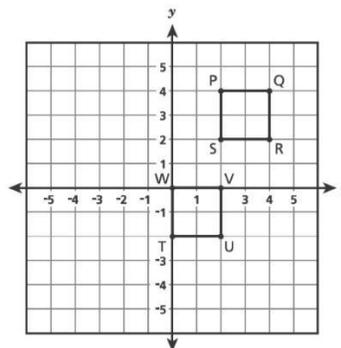
21. In the diagram below, line  $JK$  is parallel to line  $LM$ , and line  $n$  is a transversal.



Which two angles must be congruent to  $\angle 4$  in the diagram?

- A.  $\angle 1$  and  $\angle 2$
- B.  $\angle 1$  and  $\angle 6$
- C.  $\angle 2$  and  $\angle 7$
- D.  $\angle 6$  and  $\angle 7$

22. Squares  $PQRS$  and  $TUVW$  are shown below.



Which sequence of transformations of square  $PQRS$  shows that square  $PQRS$  is congruent to square  $TUVW$ ?

- A a translation 2 units up and 2 units to the right, then a reflection over the  $x$ -axis
- B a translation 2 units up and 2 units to the right, then a reflection over the  $y$ -axis
- C a translation 2 units down and 2 units to the left, then a reflection over the  $x$ -axis
- D a translation 2 units down and 2 units to the left, then a reflection over the  $y$ -axis

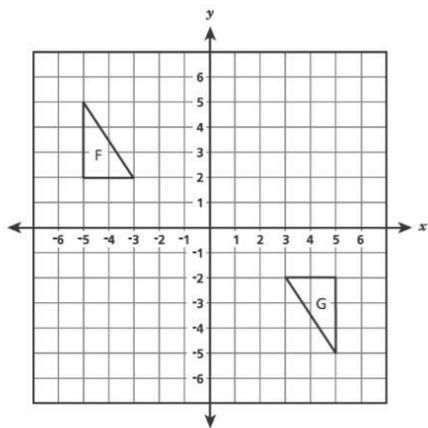
23. A parallelogram with vertices at  $(0, 3)$ ,  $(2, 0)$ ,  $(4, 2)$ , and  $(2, 5)$  is reflected over the  $y$ -axis. Which vertex of the parallelogram will have the same  $x$ -coordinate before and after the reflection?

- A  $(0, 3)$       B  $(2, 0)$   
 C  $(4, 2)$       D  $(2, 5)$

26. Which set of angle measures could be the interior angles of a triangle?

- A  $90^\circ, 90^\circ, 90^\circ$       B  $80^\circ, 80^\circ, 200^\circ$   
 C  $40^\circ, 50^\circ, 60^\circ$       D  $15^\circ, 30^\circ, 135^\circ$

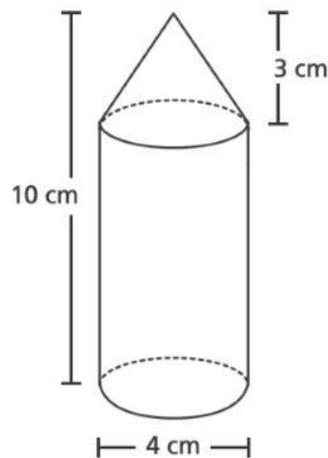
24. Triangle  $F$  and triangle  $G$  are shown below.



Which sequence does **not** transform triangle  $F$  to triangle  $G$ ?

- A a  $180^\circ$  clockwise rotation about the origin  
 B a  $180^\circ$  counterclockwise rotation about the origin  
 C a reflection over the  $x$ -axis and then a reflection over the  $y$ -axis  
 D a reflection over the  $y$ -axis and then a  $90^\circ$  clockwise rotation about the origin

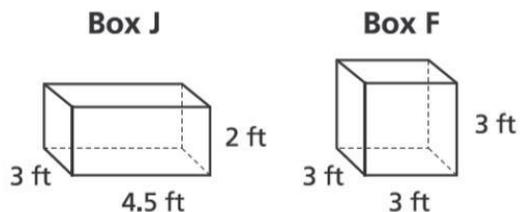
27. The object below was made by placing a cone on top of a cylinder. The base of the cone is congruent to the base of the cylinder.



What is the volume, in cubic centimeters, of the object?

- A  $32\pi$       B  $40\pi$   
 C  $44\pi$       D  $128\pi$

25. Two types of shipping boxes are shown below.



What is the difference in the surface areas, in square feet, of the two boxes?

- A 2      B 3  
 C 21      D 30

28. A sequence of transformations was applied to an equilateral triangle in a coordinate plane. The transformations used were rotations, reflections, and translations. Which statement about the resulting figure is true?

- A. It must be an equilateral triangle with the same side lengths as the original triangle.  
 B. It must be an equilateral triangle, but the side lengths may differ from the original triangle.  
 C. It may be a scalene triangle, and all the side lengths may differ from the original triangle.  
 D. It may be an obtuse triangle with at least one side the same length as the original triangle.

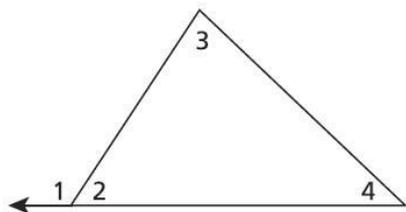
29. Triangle M is similar to triangle N. Triangle M has two angles with measures of  $32^\circ$  and  $93^\circ$ . Which two angle measures could be included in triangle N?

- A.  $32^\circ$  and  $58^\circ$       B.  $32^\circ$  and  $74^\circ$   
 C.  $93^\circ$  and  $55^\circ$       D.  $93^\circ$  and  $87^\circ$

32. A solid object was sliced to form two new objects. Each of the two new objects had a circular base. Which shape could **not** have been the original object?

- A Cone                      B cylinder  
 C Prism                      D sphere

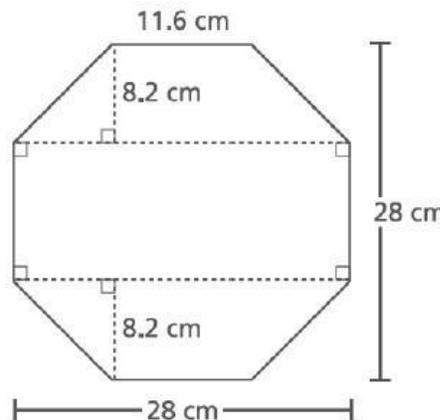
30. Mya claims  $(m\angle 3 + m\angle 4) = m\angle 1$ , as shown in the triangle below.



Which equations explain why Mya's claim must be true?

- A  $(m\angle 1 + m\angle 2) = 90^\circ$  and  $(m\angle 3 + m\angle 4) = 90^\circ$   
 B  $(m\angle 1 + m\angle 2) = 180^\circ$  and  $(m\angle 3 + m\angle 4) = 180^\circ$   
 C  $(m\angle 1 + m\angle 2) = 90^\circ$  and  $(m\angle 3 + m\angle 4 + m\angle 2) = 90^\circ$   
 D  $(m\angle 1 + m\angle 2) = 180^\circ$  and  $(m\angle 3 + m\angle 4 + m\angle 2) = 180^\circ$

33. The octagon shown below has eight congruent sides. The given measures of the octagon are rounded to the nearest tenth of a centimeter.



What is the area, to the nearest square centimeter, of the octagon?

- A 392                      B 650  
 C 487                      D 720

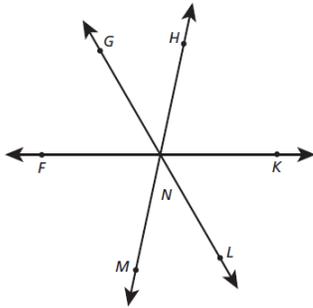
31. A cylinder has a diameter of 14 centimeters and a volume of  $112\pi$  cubic centimeters. What is the height, in centimeters, of the cylinder?

- A 16                      B 4  
 C  $\frac{16}{7}$                       D  $\frac{4}{7}$

34. An above-ground swimming pool in the shape of a cylinder has a diameter of 18 feet and a height of 4.5 feet. If the pool is filled with water to 6 inches from the top of the pool, what is the volume, to the nearest cubic foot, of the water in the pool?

- A 226                      B 452  
 C 1,018                      D 4,072

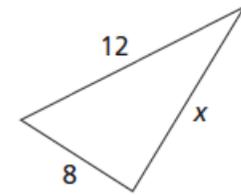
35. In the diagram below, three lines intersect at  $N$ . The measure of  $\angle GNF$  is  $60^\circ$ , and the measure of  $\angle MNL$  is  $47^\circ$ .



What is the measure of  $\angle HNK$ ?

- A  $47^\circ$
- B  $60^\circ$
- C  $73^\circ$
- D  $107^\circ$

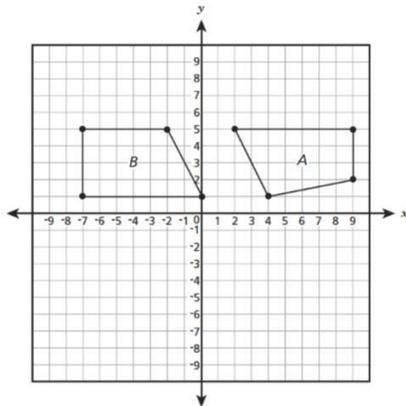
37. Which number could **not** be a value of  $x$ ?



[not drawn to scale]

- A 8
- B 9
- C 12
- D 21

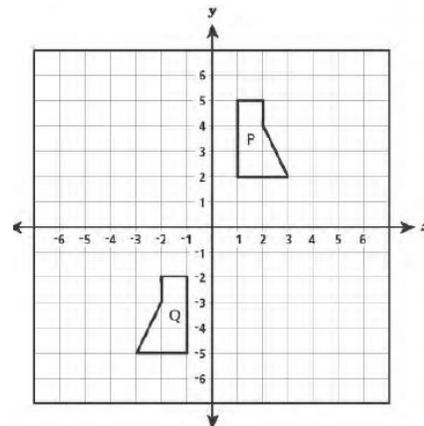
36. Lily wants to define a transformation (or series of transformations) using only rotations, reflections, or translations that takes Figure A to Figure B.



Which statement about the transformation that Lily wants to define is true?

- A It can be defined with two reflections.
- B It can be defined with one rotation and one translation.
- C It cannot be defined because Figure A and Figure B are not congruent.
- D It cannot be defined because the longest side of Figure B is on the bottom.

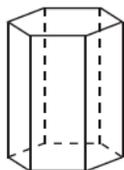
38. Pentagon P and Pentagon Q, shown below, are congruent.



Which sequence could be used to transform pentagon P to pentagon Q?

- A a  $180^\circ$  clockwise rotation about the origin
- B a translation four units left and then a reflection over the x-axis
- C a reflection over the y-axis and then a translation seven units down
- D a translation seven units down and then a  $90^\circ$  clockwise rotation about the origin

39. A right hexagonal prism is shown below. A two-dimensional cross section that is perpendicular to the base is taken from the prism. Which figure describes the two-dimensional cross section?

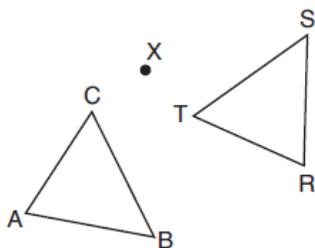


- A triangle                      B rectangle  
C pentagon                      D hexagon

42. Which statement explains the type of function that is represented by the equation  $y = x^2 + 9$ ?

- A The function is linear because it contains more than one term.  
B The function is linear because the variable  $x$  is raised to the second power.  
C The function is nonlinear because it contains more than one term.  
D The function is nonlinear because the variable  $x$  is raised to the second power

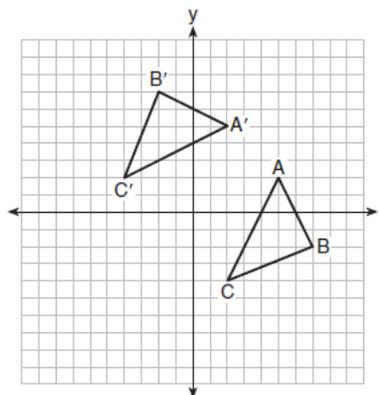
40. After a counterclockwise rotation about point  $X$ , scalene triangle  $ABC$  maps onto  $\triangle RST$ , as shown in the diagram below.



Which statement must be true?

- A  $\angle A \cong \angle R$   
B  $\angle A \cong \angle S$   
C  $\overline{CB} \cong \overline{TR}$   
D  $\overline{CA} \cong \overline{TS}$

43. The graph below shows two congruent triangles,  $ABC$  and  $A'B'C'$ .



Which rigid motion would map  $\triangle ABC$  onto  $\triangle A'B'C'$ ?

- A a rotation of 90 degrees counterclockwise about the origin  
B a translation of three units to the left and three units up  
C a rotation of 180 degrees about the origin  
D a reflection over the line  $y = x$

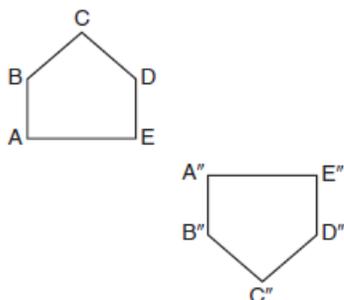
41. A right cylinder is cut perpendicular to its base. The shape of the cross section is a

- A circle  
B cylinder  
C rectangle  
D triangular prism

44. A parallelogram must be a rhombus if its diagonals

- A are congruent  
B bisect each other  
C do not bisect its angles  
D are perpendicular to each other

45. Identify which sequence of transformations could map pentagon  $ABCDE$  onto pentagon  $A''B''C''D''E''$ , as shown below.



- A dilation followed by a rotation
- B translation followed by a rotation
- C line reflection followed by a translation
- D line reflection followed by a line reflection

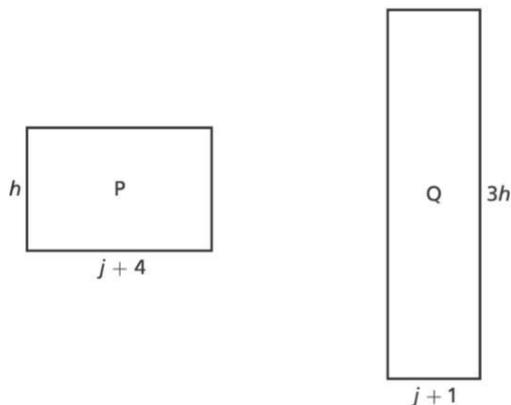
46. Which set of ordered pairs represents a function?

- A  $\{(2, 7), (2, 8), (3, 8)\}$
- B  $\{(3, 2), (3, 3), (3, 4)\}$
- C  $\{(4, 1), (5, 1), (4, 4)\}$
- D  $\{(5, 6), (8, 6), (9, 6)\}$

47. A parallelogram is always a rectangle if

- A the diagonals are congruent
- B the diagonals bisect each other
- C the diagonals intersect at right angles
- D the opposite angles are congruent

48. Two rectangles are shown below. Rectangle  $P$  has a perimeter of 20 inches. Rectangle  $Q$  has a perimeter of 30 inches.



What are the values of  $j$  and  $h$ ?

- A  $j = 3$  and  $h = 3$
- B  $j = 10$  and  $h = 4$
- C  $j = 2$  and  $h = 4$
- D  $j = 9.5$  and  $h = 6.5$

49. What is the solution to the equation shown below?

$$23x + 5 = 1$$

- A  $x = -6$
- B  $x = 4$
- C  $x = -4.5$
- D  $x = 9$

50. Under which transformation would  $\triangle A'B'C'$ , the image of  $\triangle ABC$ , not be congruent to  $\triangle ABC$ ?

- A reflection over the  $y$ -axis
- B rotation of  $90^\circ$  clockwise about the origin
- C translation of 3 units right and 2 units down
- D dilation with a scale factor of 2 centered at the origin

