

Test Booklet

Subject: MA, Grade: 07
ARMT Grade 7 Math Part 2

Student name: _____

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District: Alabama Released Tests
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- 1 What value of x makes the following equation true?

$$4x - 3 = 18$$

- A 1.5
- B 3.75
- C 5.25
- D 7.5

- 2 What value of x makes the following equation true?

$$\frac{x+6}{2} = 9$$

- A 1
- B 5
- C 12
- D 24

- 3 What value of x makes the following equation true?

$$31 = x + 14$$

- A 45
- B 27
- C 25
- D 17

- 4 What value of y makes the following equation true?

$$42 = 7y$$

- A 6
- B 35
- C 49
- D 294

- 5 What value of x makes the following equation true?

$$94 = 4x + 6$$

- A 84
- B 25
- C 22
- D $17\frac{1}{2}$

- 6 What value of x makes the following equation true?

$$\frac{x}{7} = 13$$

- A 21
- B 31
- C 71
- D 91

- 7 What value of x makes the following equation true?

$$\frac{x}{5} + 2 = 12$$

- A 50
- B 58
- C 62
- D 70

- 8 What value of x makes the following equation true?

$$11x - 23 = 54$$

- A 66
- B 28
- C 7
- D 3

- 9 What value of x makes the following equation true?

$$-96 = 4x$$

- A -24
- B 100
- C 24
- D -100

- 10 What value of x makes the following equation true?

$$48 = \frac{6x}{2}$$

- A 21
- B 16
- C 8
- D 4

- 11 What value of n makes the following equation true?

$$4n \div 6 = 54$$

- A 12
- B 15
- C 34
- D 81

- 12 If $7h + 39 = 60$, what is the value of h ?

- A 2
- B 3
- C 4
- D 5

- 13 What value of x makes the following equation true?

$$32 = x + 13$$

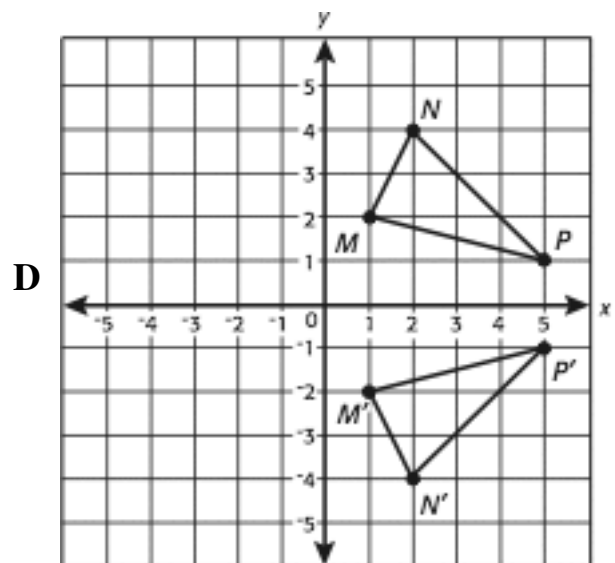
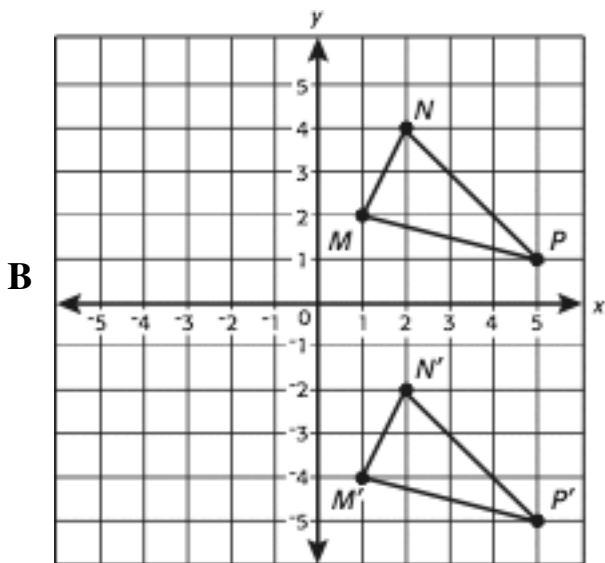
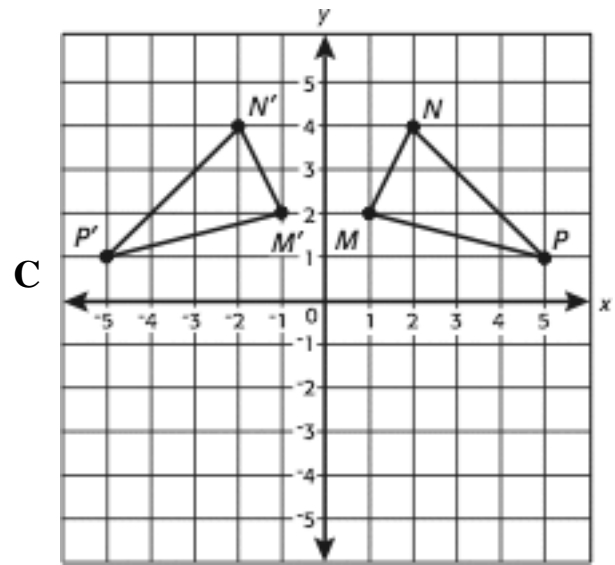
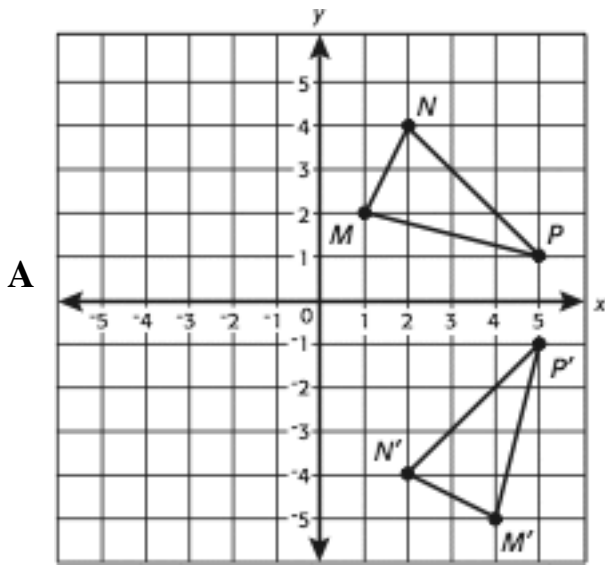
- A 19
- B 25
- C 29
- D 65

- 14 What value of x makes the following equation true?

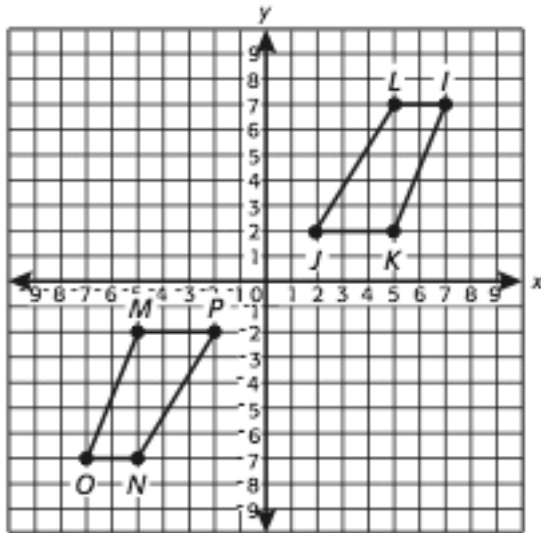
$$\frac{x-15}{5} = 5$$

- A -5
- B 4
- C 10
- D 40

15 Which of the following diagrams shows the reflection of triangle MPN across the x -axis?

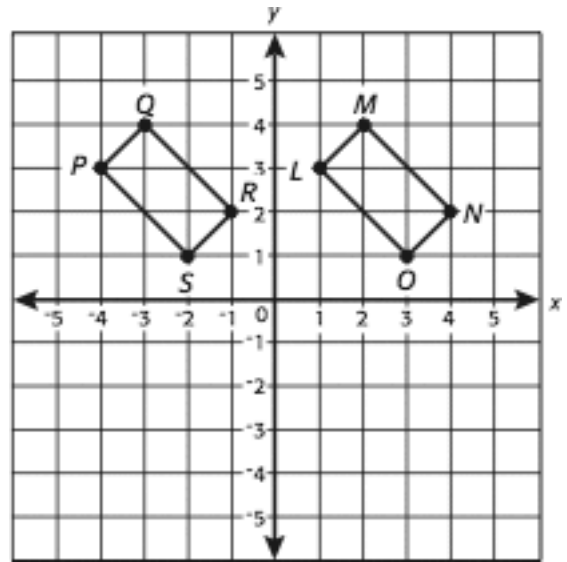


16 Using the diagram below, which single transformation will move quadrilateral $LJKI$ to quadrilateral $NPMO$?



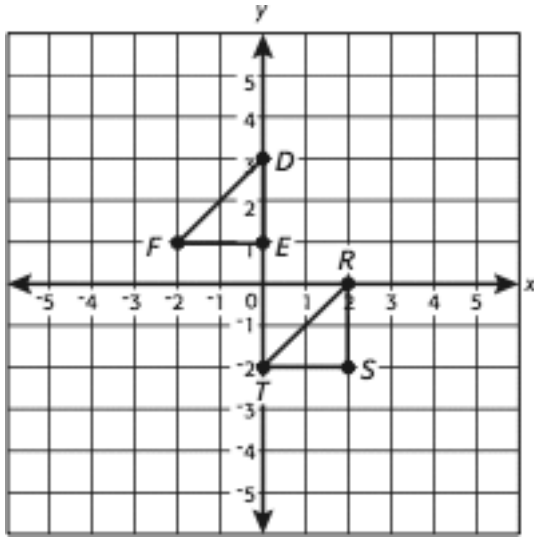
- A Rotation of 180° around the origin
- B Reflection over the x -axis
- C Reflection over the y -axis
- D Rotation of 90° clockwise around the origin

17 Using the diagram below, which single transformation will move rectangle $LONM$ to rectangle $PSRQ$?



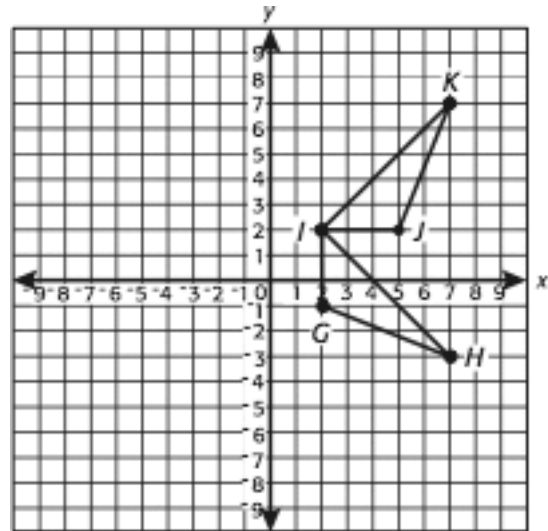
- A Reflection across the x -axis
- B Reflection across the y -axis
- C Rotation of 90° clockwise around $(0, 2)$
- D Translation of 5 units to the left

- 18 Using the diagram below, which translations will move triangle RTS to triangle DFE ?



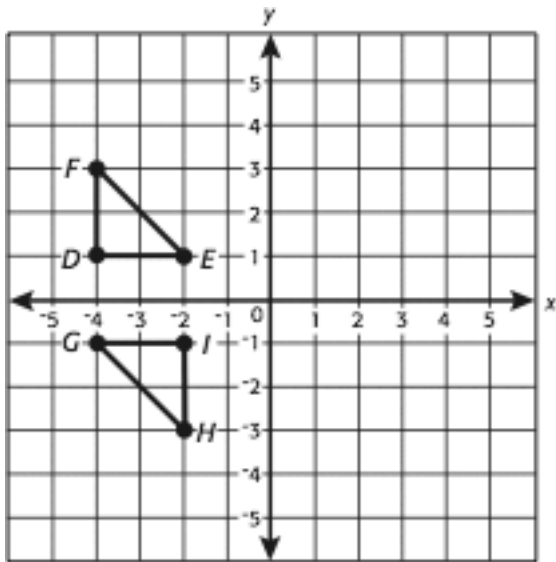
- A Translations of 3 units down and 2 units to the right
- B Translations of 3 units up and 2 units to the right
- C Translations of 3 units up and 2 units to the left
- D Translations of 2 units down and 3 units to the left

- 19 Using the diagram below, which single transformation will move triangle IJK to triangle IGH ?



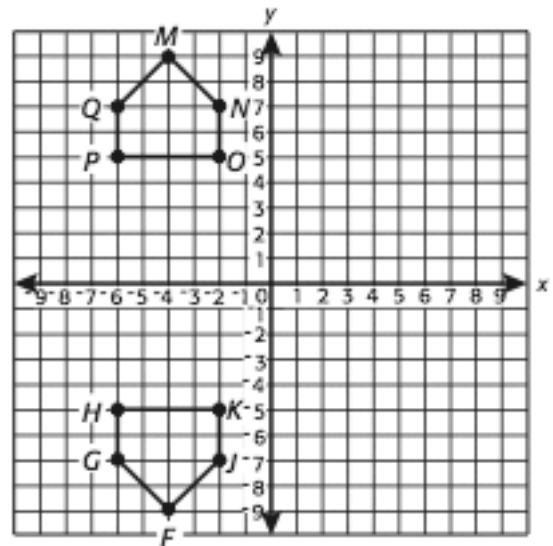
- A Rotation of 270° clockwise around point I
- B Rotation of 90° clockwise around point I
- C Rotation of 180° clockwise around point I
- D Rotation of 90° counterclockwise around point I

20 Using the diagram below, which single transformation will move triangle DEF to triangle IGH ?



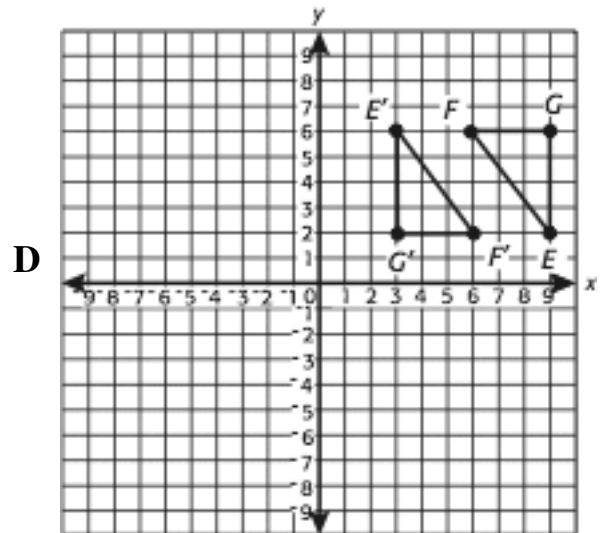
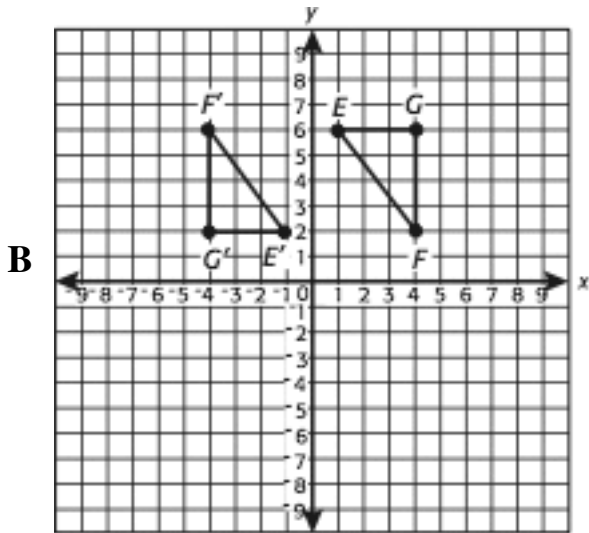
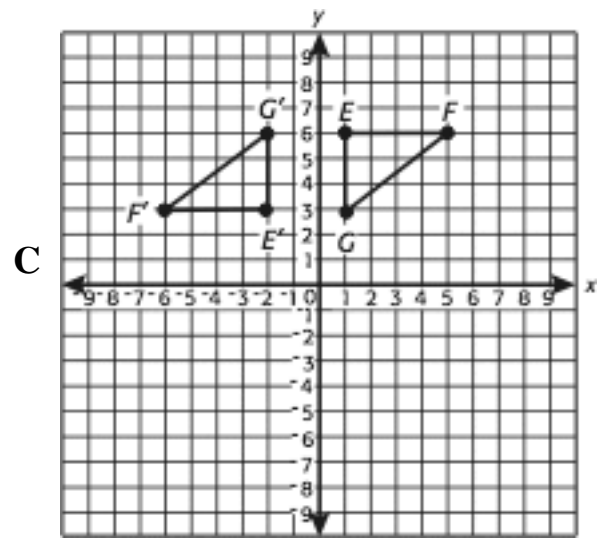
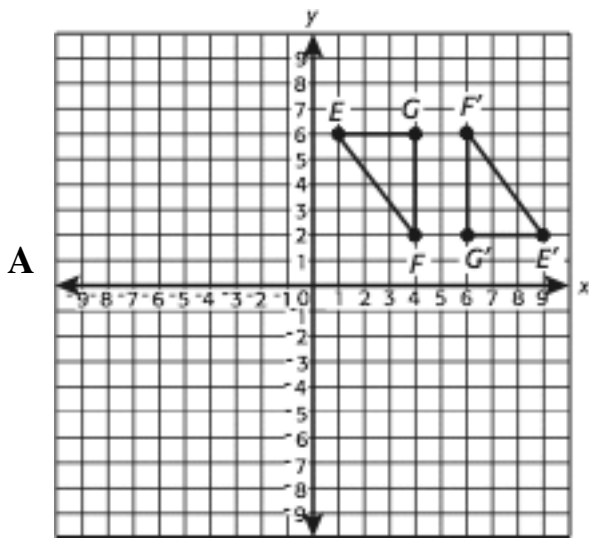
- A Reflection over the x -axis
- B Translation of 4 units down
- C Rotation of 90° clockwise around $(-3, 0)$
- D Rotation of 180° around $(-3, 0)$

21 Using the diagram below, which single transformation will move pentagon $MQPON$ to pentagon $FGHKJ$?

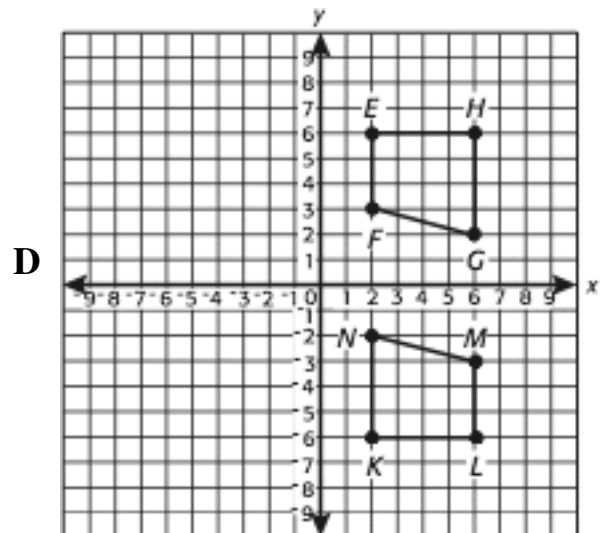
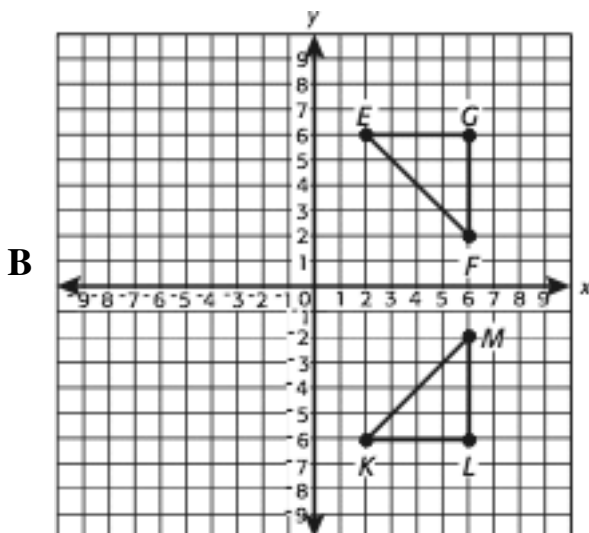
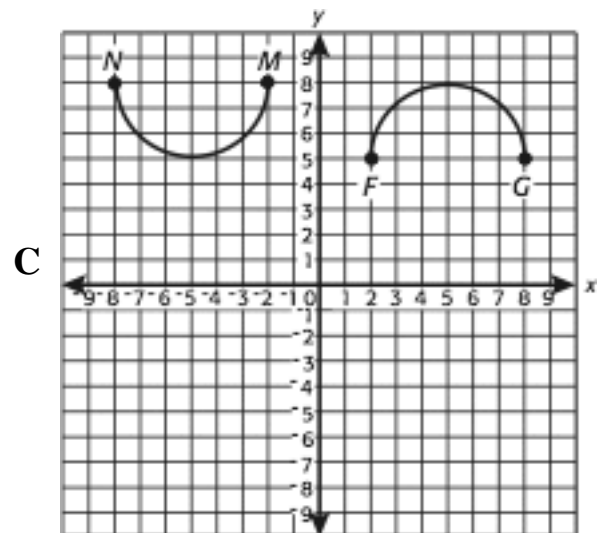
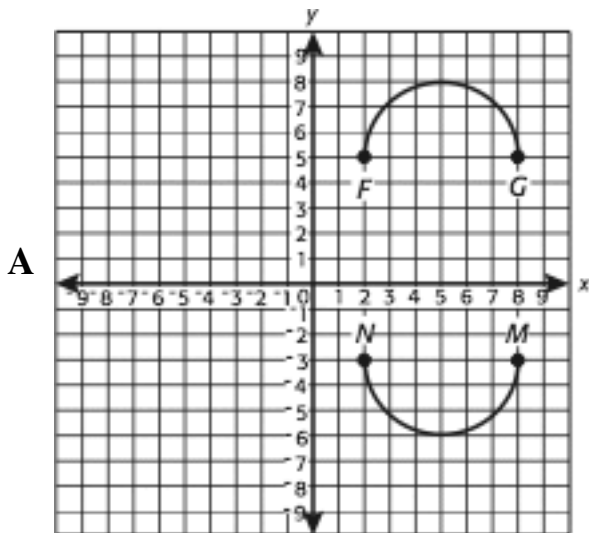


- A Reflection across the x -axis
- B Reflection across the y -axis
- C Transformation 18 units down
- D Rotation of 180° around the origin

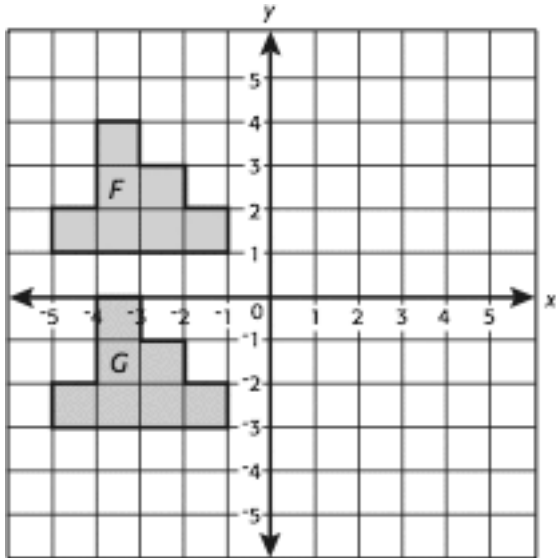
22 Which of the following shows a single rotation of triangle EGF of 180° around $(6, 4)$?



23 The four figures below represent different transformations. Which of these figures represents a reflection across the x -axis?

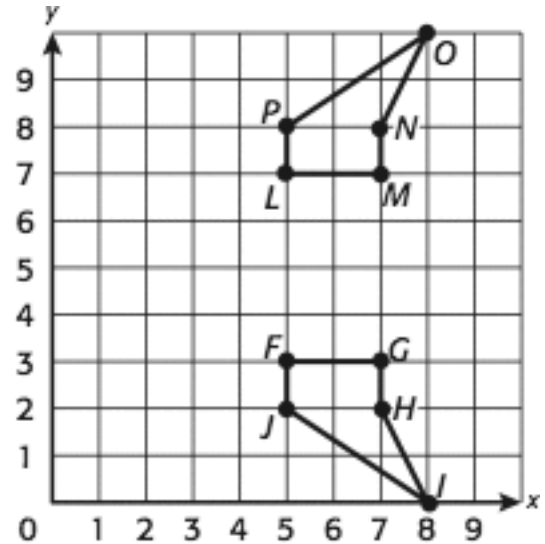


24 Using the diagram below, which single transformation will move polygon F to polygon G ?



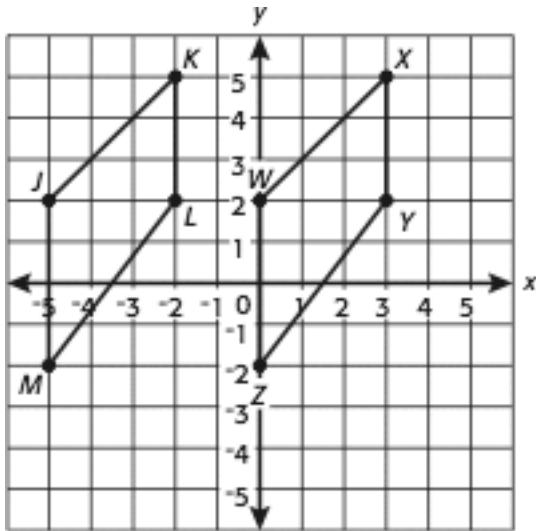
- A Reflection across the x -axis
- B Reflection across the y -axis
- C Translation of 4 units down
- D Rotation of 180° around $(-3, 0)$

25 Using the diagram below, which transformation(s) will move polygon $LMNOP$ to polygon $FGHIJ$?



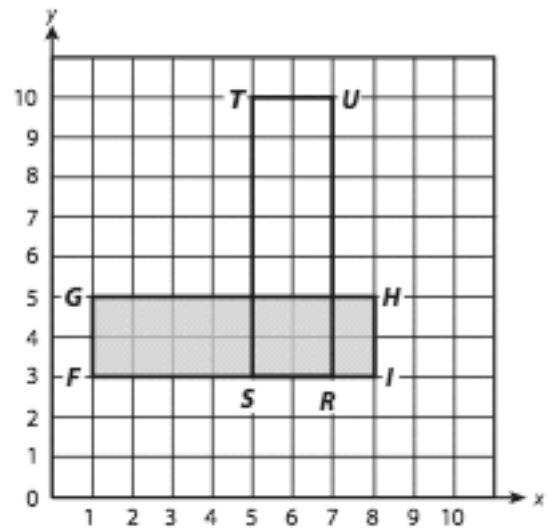
- A Reflection across the line $y = 5$
- B Reflection across the line $x = 5$
- C Reflection across the line $y = 7$ and translation 3 units down
- D Reflection across the line $x = 5$ and translation 3 units down

26 Using the diagram below, which single transformation will move quadrilateral $JKLM$ to quadrilateral $WXYZ$?



- A Translation
- B Rotation
- C Reflection
- D Dilation

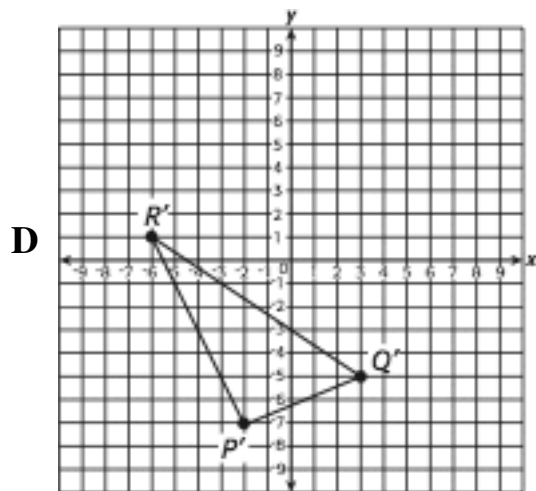
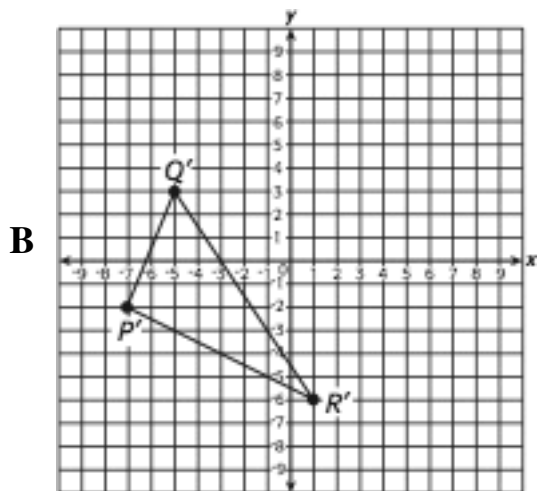
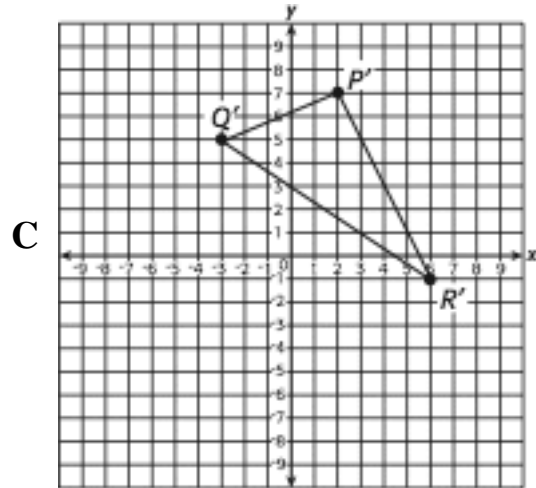
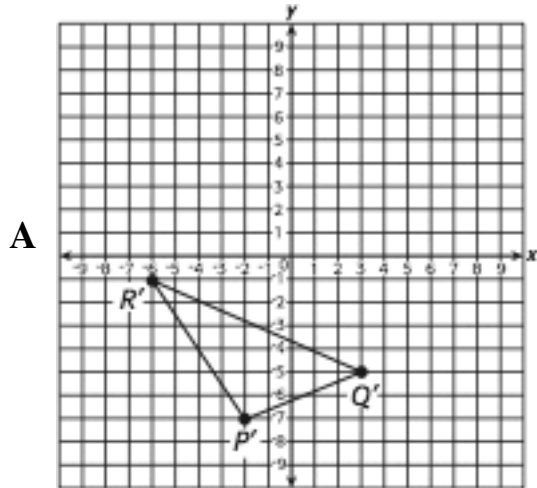
27 Using the diagram below, which single transformation below will move rectangle $FGHI$ to rectangle $RSTU$?



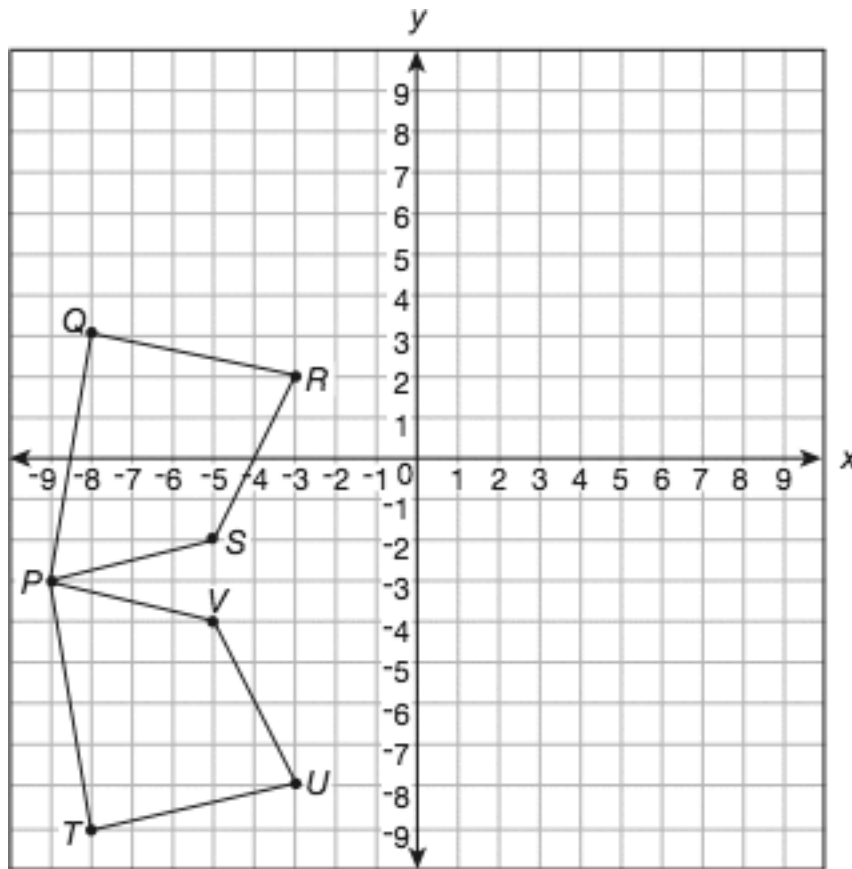
- A Translation of 4 units to the right
- B Counterclockwise rotation of 90° around $(4, 6)$
- C Translation of 7 units up
- D Clockwise rotation of 90° around $(5, 5)$

28 $\triangle PQR$ has vertices $P(-2, 7)$, $Q(3, 5)$, and $R(-6, -1)$.

Which of the following best represents a reflection of $\triangle PQR$ across the x -axis to become $\triangle P'Q'R'$?



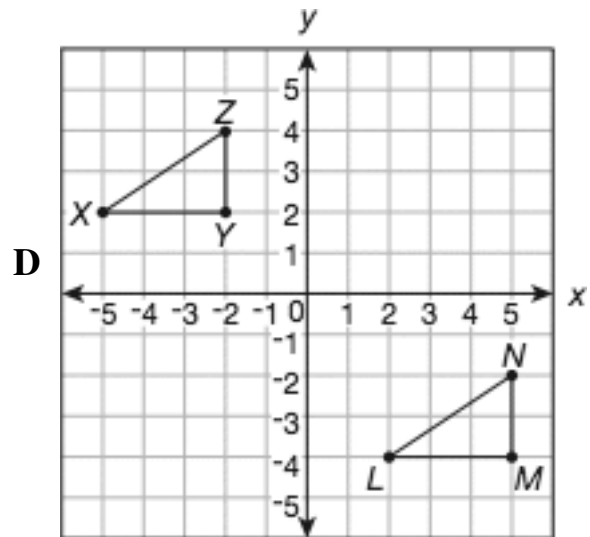
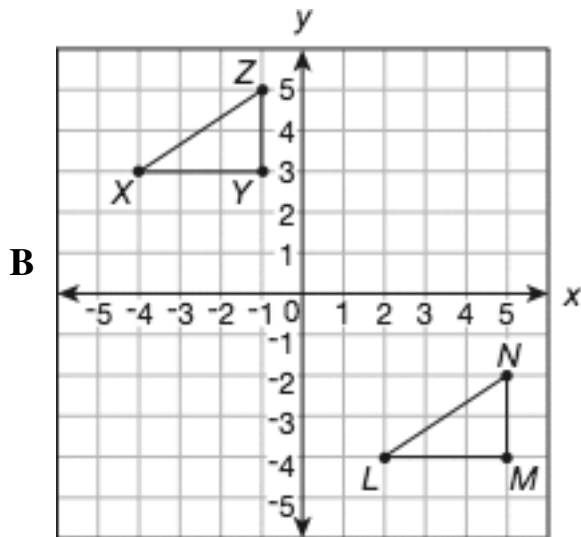
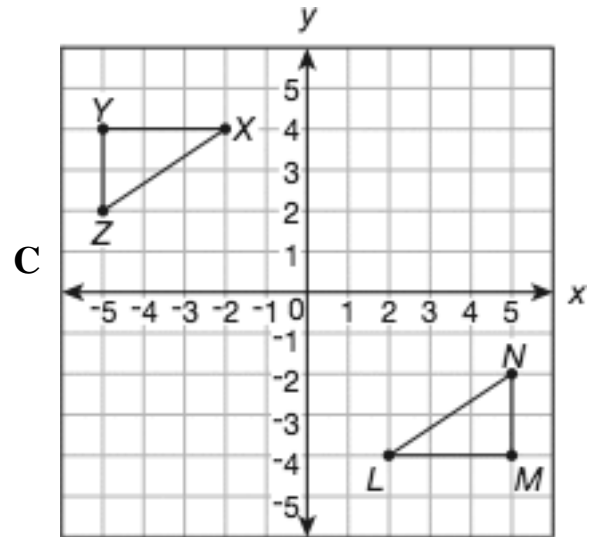
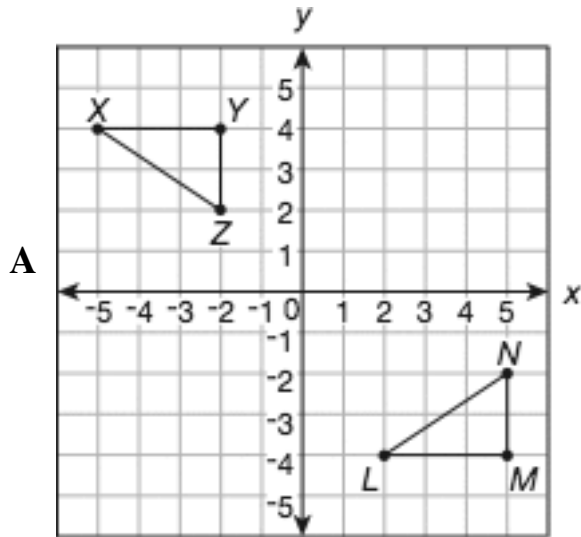
- 29 Using the diagram below, which single transformation will move quadrilateral $PQRS$ to quadrilateral $PTUV$?



- A Reflection over the line $y = -3$
- B Reflection over the line $y = -5$
- C Rotation of 180° clockwise about $(-5, -3)$
- D Translation of 6 units down

30 Triangle LMN becomes triangle XYZ after a translation of 7 units to the left and a reflection across the x -axis.

Which of the following shows these transformations?



31 What do Figures A and B below have in common?



Figure A

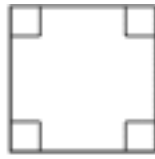
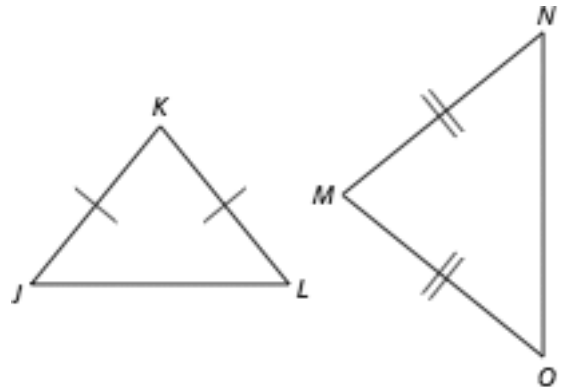


Figure B

- A Both figures have four right angles.
 B Both figures have four congruent sides.
 C Each angle measures exactly 45° .
 D Each figure has four lines of symmetry.
- 32 Which of the following quadrilaterals has *exactly* two sides that are parallel?
- A Rhombus
 B Rectangle
 C Trapezoid
 D Parallelogram
- 33 What property does *not* apply to all right rectangular prisms?

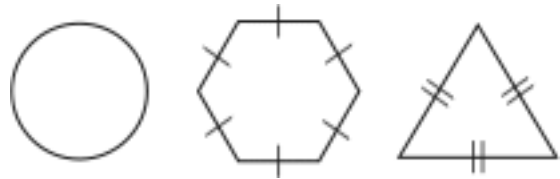
- A Opposite lateral faces are parallel.
 B The lateral faces are all rectangles.
 C The bases are right triangles.
 D The bases are parallel.

34 Compare triangles JKL and OMN as shown below.



Which of the statements below is *always* true?

- A Both triangles are right.
 B Both triangles are isosceles.
 C Both triangles are equilateral.
 D Both triangles are scalene.
- 35 What do the three figures shown below have in common?



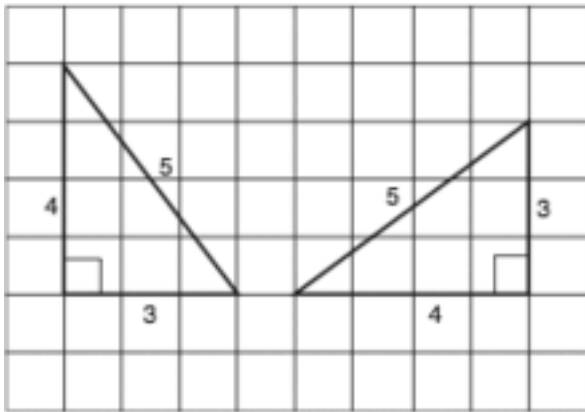
- A They all have lines of symmetry.
 B They are all equilateral.
 C They are all congruent.
 D They are all polygons.

- 36** The quadrilaterals $LMNO$ and $HIJK$ are congruent.

Which of the following statements about the quadrilaterals is *not* always true?

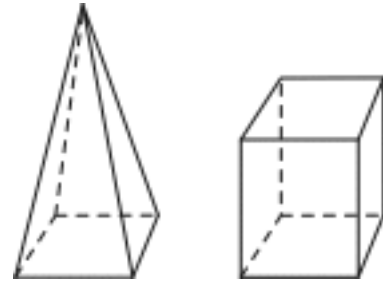
- A** They have equal corresponding angles.
 - B** They are both the same size.
 - C** They are both the same shape.
 - D** They are equilateral.
- 37** Which of the following statements must *always* be true of two similar, non-congruent triangles?
- A** Both triangles have the same shape.
 - B** All sides of both triangles are the same length.
 - C** Both triangles have the same shape and the same size.
 - D** All angles of both triangles have different measures.

- 38** Which is true about the two triangles below?



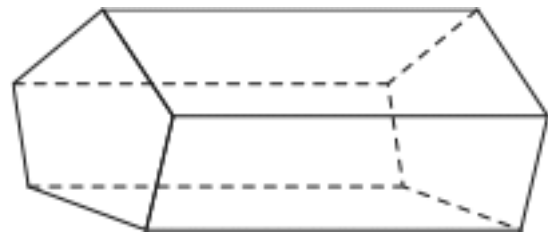
- A** They are congruent triangles.
- B** They are equilateral triangles.
- C** They are isosceles triangles.
- D** They are acute triangles.

- 39** What do the figures shown below have in common?



- A** Both have a triangular base.
 - B** Both have a rectangular base.
 - C** Both have eight vertices.
 - D** Both have twelve edges.
- 40** Which of the following three-dimensional objects are always similar to each other?
- A** Square pyramids
 - B** Rectangular prisms
 - C** Spheres
 - D** Cylinders

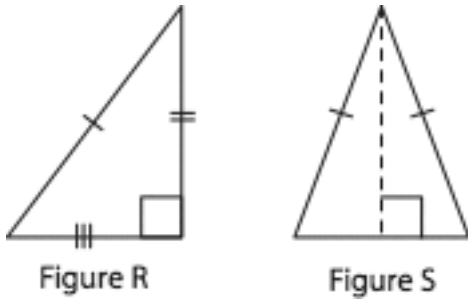
- 41** A pentagonal prism is shown below.



Which is a property of a pentagonal prism?

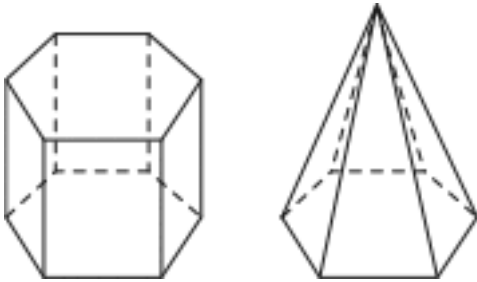
- A** It has two hexagons as bases.
- B** It has five pentagons as faces.
- C** It has exactly seven edges.
- D** It has exactly ten vertices.

42 How are figures R and S the same?



- A Both are congruent polygons.
- B Both are regular polygons.
- C Both have acute angles.
- D Both have obtuse angles.

43 What do the figures shown below have in common?



- A Both have parallel faces.
- B Both have eight faces.
- C Both have a pentagon as a base.
- D Both have a hexagon as a base.

44 Which term does *not* apply to the figure below?



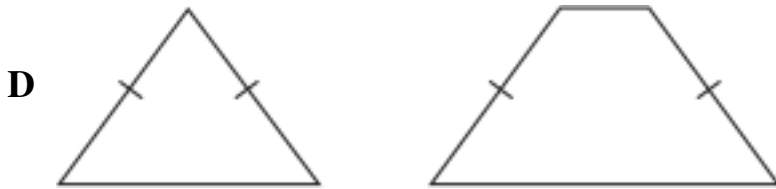
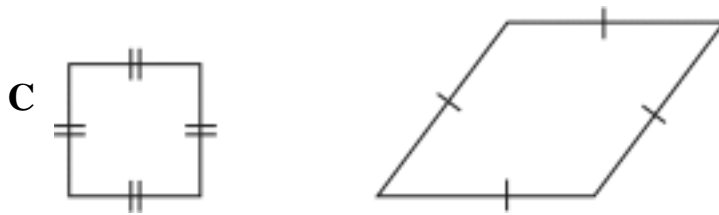
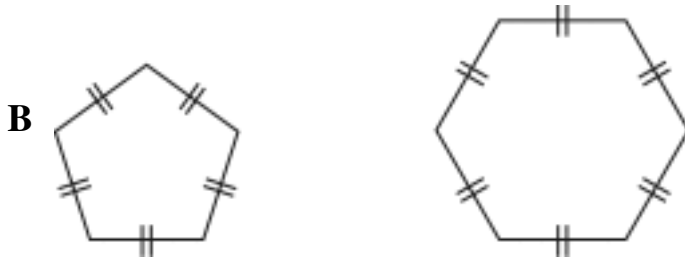
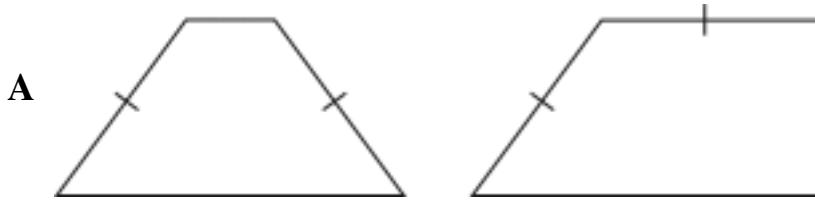
- A Rhombus
- B Square
- C Quadrilateral
- D Parallelogram

45 Which statement is true for the figures shown below?

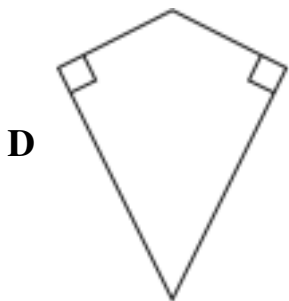
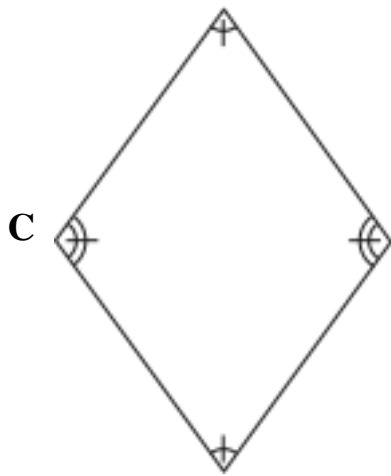
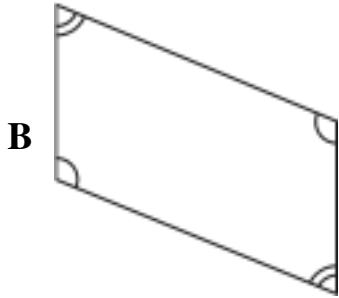
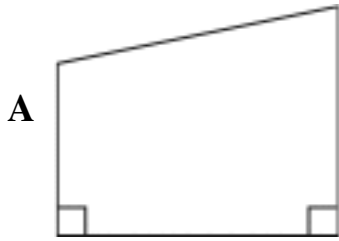


- A Both figures have 2 sets of opposite angles that are congruent.
- B Both figures have 2 obtuse angles.
- C Both figures have 2 right angles.
- D Both figures have 2 sets of opposite sides that are congruent.

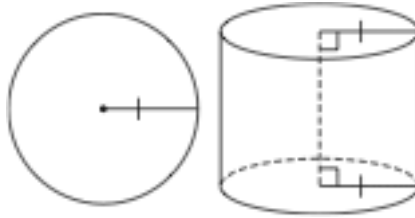
46 Which figures can both be described as rhombuses?



47 Which figure is a trapezoid?



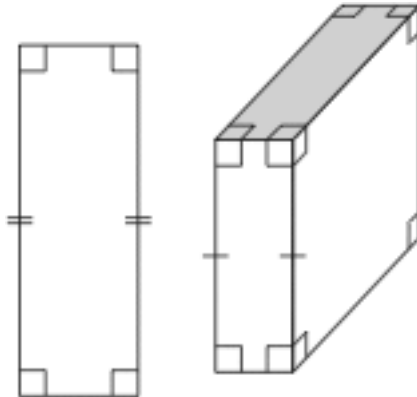
- 48 Use the two-dimensional and three-dimensional figures shown below to explain the geometric relationships of the figures.



- a) Explain two ways the figures shown are the same.

- b) Explain one way the figures shown are different.

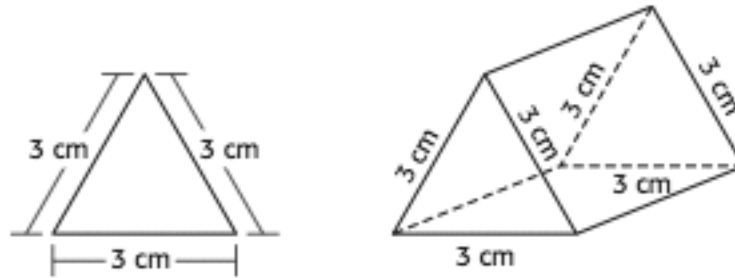
- 49 Use the two-dimensional and three-dimensional figures shown below to explain the geometric relationships of the figures.



- a) Explain one way the figures shown are the same.

- b) Explain two ways the figures shown are different.

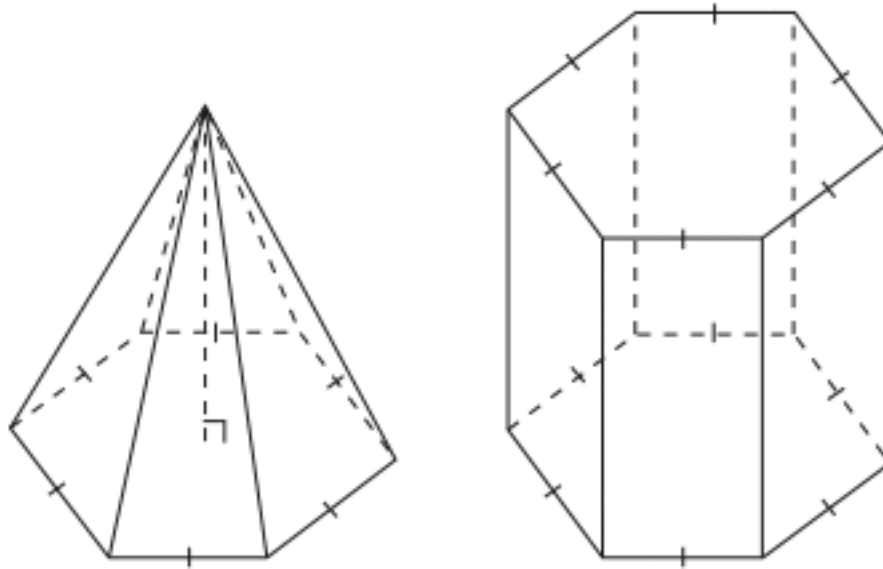
- 50 Use the two-dimensional and three-dimensional figures shown below to explain the geometric relationships of the figures.



- a) Explain two ways the figures shown above are the same.

- b) Explain one way they are different.

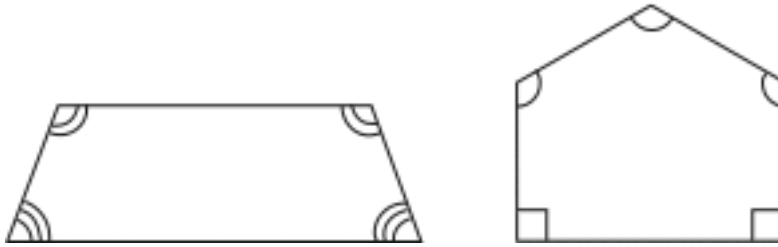
51 Use the three-dimensional figures shown below to explain the geometric relationships of the figures.



a) Explain one way the figures shown above are the same.

b) Explain two ways they are different.

52 Use the two-dimensional figures shown below to explain the geometric relationships of the figures.



a) Explain two ways the figures shown above are different.

b) Explain one way they are the same.

53 Brian is measuring one of his family's round dinner plates so that he can buy more plates of the same size. He found that it is 14 centimeters from the edge of the plate to the center of the plate.

Which is *closest* to the circumference, in centimeters, of the plate?

- A 43.96
- B 87.92
- C 153.86
- D 615.44

54 Mr. Brown is building a circular patio in his yard. The diameter of the patio is 16 feet.

Which is closest to the area, in square feet, of Mr. Brown's patio?

- A 30
- B 50
- C 200
- D 800

55 A circle has a radius of 6 inches. Which is the closest to the area, in square inches, of the circle?

- A 59.16
- B 113.04
- C 118.32
- D 452.16

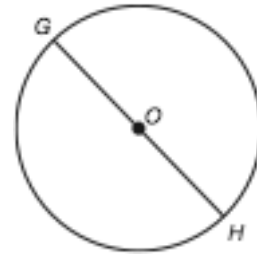
56 Which is *closest* to the area, in square centimeters, of a circle that has a diameter of 15 centimeters?

- A 176
- B 94
- C 47
- D 24

57 Which is *closest* to the area, in square centimeters, of a circle that has a radius of 11 centimeters?

- A 35
- B 95
- C 380
- D 1,520

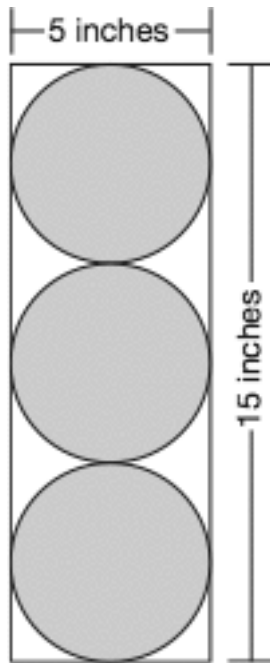
58 \overline{GH} is a diameter of circle O and measures 9 yards in length.



Which is *closest* to the circumference of the circle?

- A 14 yd
- B 28 yd
- C 57 yd
- D 64 yd

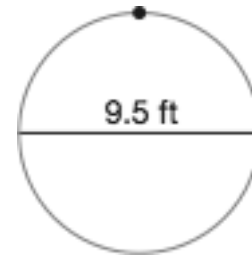
- 59 Tyler drew a rectangle around 3 circles as shown below.



Which is *closest* to the total area, in square inches, of the 3 circles?

- A 19.63
- B 58.88
- C 78.50
- D 706.50

- 60 The path of an amusement park ride is a circle with a diameter of 9.5 feet. Melanie is at the point marked on the path, as shown below.



Which is *closest* to the distance, in feet, Melanie will travel in one complete turn of the ride?

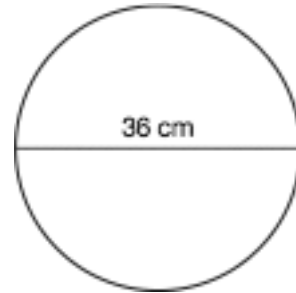
- A 14.92
 - B 29.83
 - C 59.66
 - D 70.85
- 61 A hole punch cuts a circular hole with a diameter of 8 millimeters in a piece of paper.
- Which is *closest* to the area, in square millimeters, of the hole?
- A 12.56
 - B 25.12
 - C 50.24
 - D 200.96
- 62 Ray is putting a piece of material around the circular top of his drum. The radius of the top is 17.5 centimeters.
- Which is closest to the circumference, in centimeters, of the top of the drum?
- A 54.95
 - B 109.9
 - C 219.8
 - D 961.63

- 63 The radius of a coin is $\frac{1}{2}$ inch.

What is the area, in square inches, of the coin?

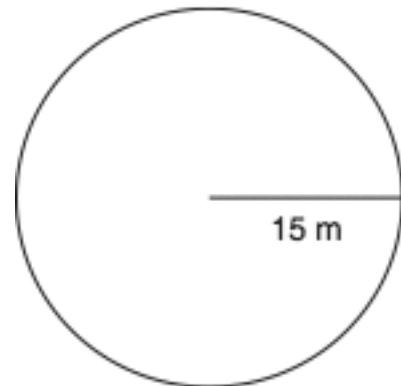
- 64 What is the area, to the *nearer* square centimeter, of a circle with a diameter of 70 centimeters?

- 65 The circle shown below has a diameter of 36 centimeters.



What is the circumference, in centimeters, of the circle?

- 66 The circle shown below has a radius of 15 meters.



What is the area, in square meters, of the circle?

67 A circle has a circumference of 37.68 centimeters.

What is the radius, in centimeters, of the circle?

68 A circle has a diameter of 10 feet.

What is the area, in square feet, of the circle?