

Geometry Simulation Test

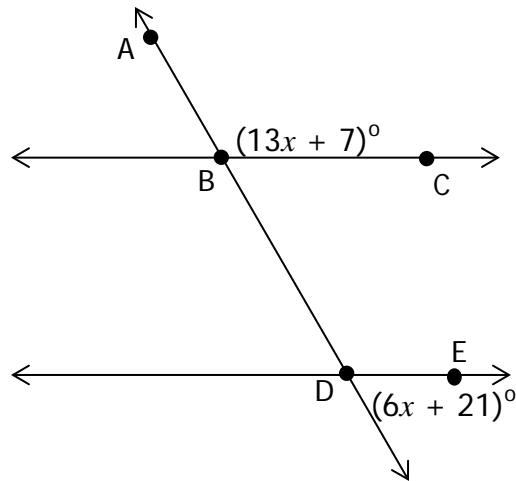
2014

Region 1

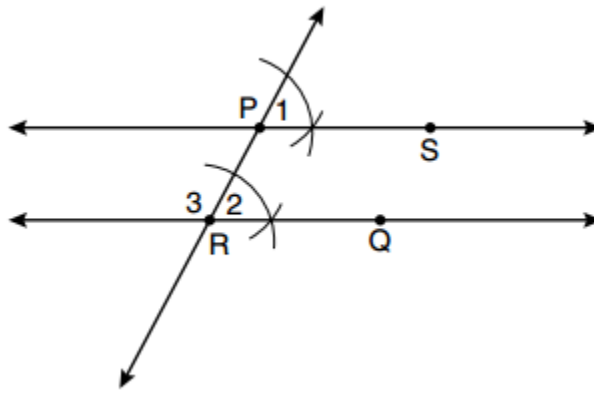
1 Determine the inverse of Mark Twain's quote "If you tell the truth, you don't have to remember anything."

- A "You don't have to remember anything if you tell the truth."
- B "If you don't tell the truth, you have to remember everything."
- C "You have to remember everything if you don't tell the truth."
- D "If you tell the truth, you have to remember everything."

2 What measure of $\angle CBD$ will prove that \overline{BC} is parallel to \overline{DE} ?



- A 8°
- B 33°
- C 69°
- D 111°



3 The diagram below illustrates the construction of \overleftrightarrow{PS} parallel to \overleftrightarrow{RQ} through point P . Which statement justifies this construction?

- A. $m\angle 1 = m\angle 2$
- B. $m\angle 1 = m\angle 3$
- C. $\overline{PR} \cong \overline{RQ}$
- D. $\overline{PS} \cong \overline{RQ}$

4 Consider the following figure -



This figure has —

- A point symmetry only
- B line symmetry only
- C point and line symmetry
- D neither point nor line symmetry

5

Let p represent

I get a flat tire.

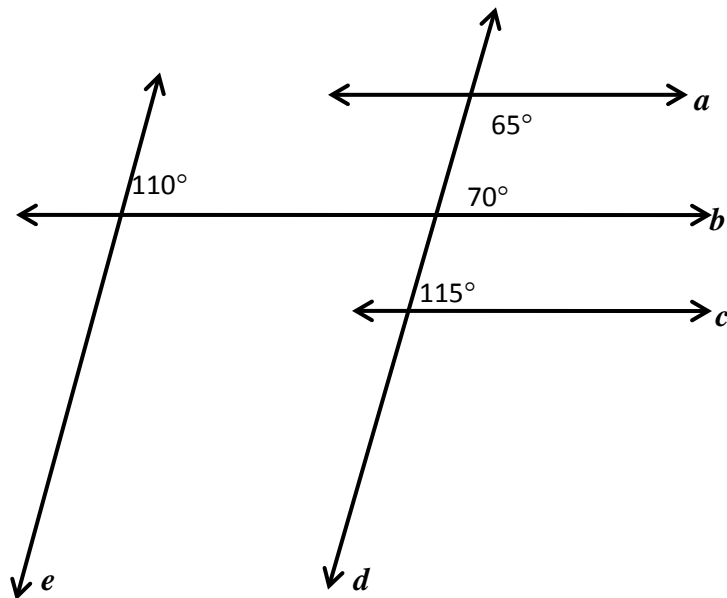
Let q represent

I will be late for work.

Which of the following represents a symbolic representation of the contrapositive?

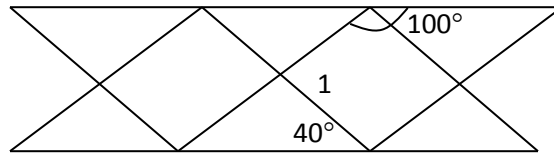
- A $q \rightarrow p$
- B $\sim p \rightarrow \sim q$
- C $\sim q \rightarrow p$
- D $\sim q \rightarrow \sim p$

6 Based on the diagram below, which two lines are parallel?



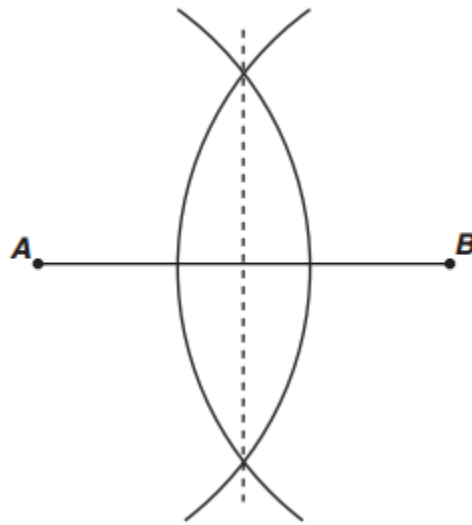
- A $a \parallel c$
- B $b \parallel e$
- C $b \parallel c$
- D $a \parallel b$

- 7 The fence below is bounded by parallel boards. Find the $m\angle 1$.



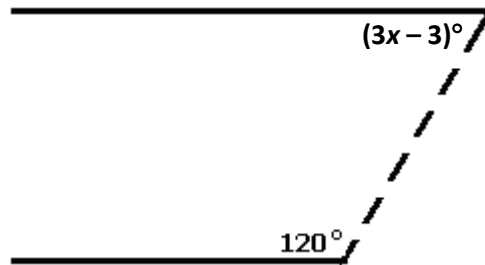
- A 40°
- B 80°
- C 100°
- D 120°
- 8 Quadrilateral $STUV$ has vertices $S (-3, 4)$, $T (1, 5)$, $U (4, 0)$ and $V (x, y)$. The midpoint of diagonal TU is $(-1, 2)$. What are the coordinates of point V ?
- A $(0, 3.5)$
- B $(0.5, 2)$
- C $(-3, -1)$
- D $(-4, -1)$

9 Which geometric construction is illustrated in the diagram?



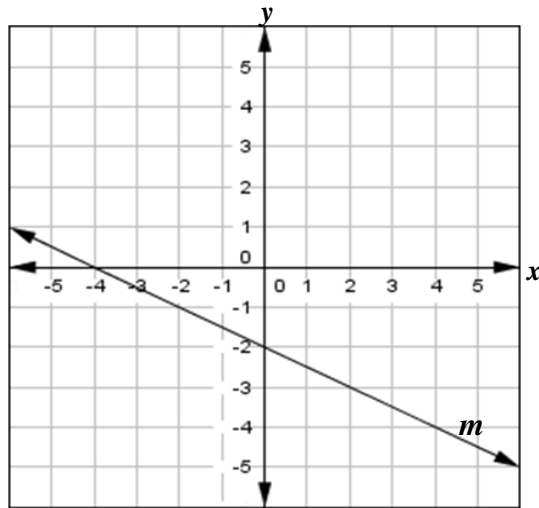
- A Angle bisector
- B Perpendicular bisector
- C Line segment congruent to given line segment
- D Angle congruent to a given angle

10 A farmer fenced in a pasture to separate his cows. What value of x would ensure that the two fences are parallel?

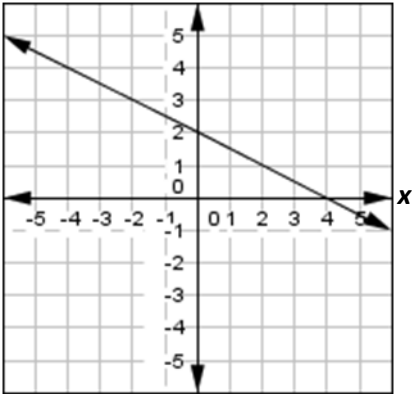
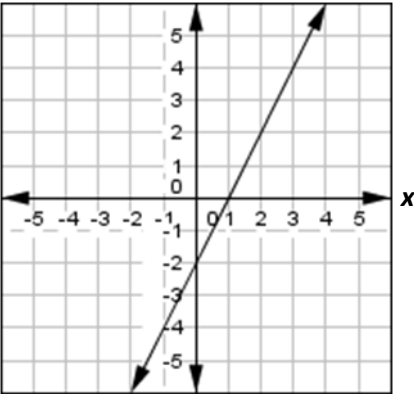


- A 19
- B 21
- C 41
- D 60

11 Line m is shown on the graph below.

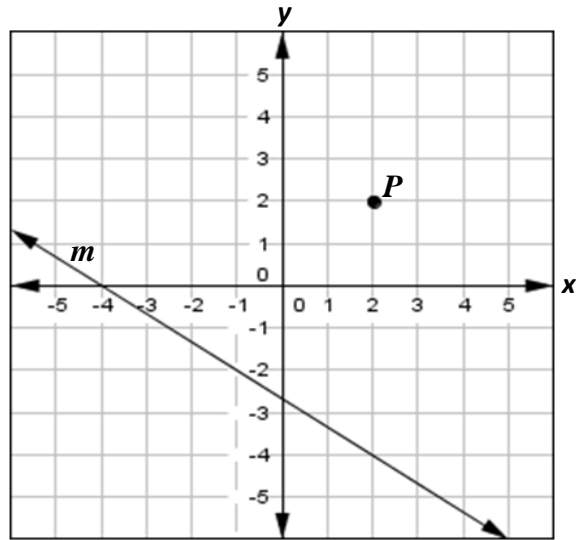


Which of the following lines are perpendicular to line m ?

<p>I A line through the points (4, -1) and (2, -5)</p>	<p>II A line through the points (4, -1), and (2, 0)</p>
<p>III $3x + 6y = 18$</p>	<p>IV $8x - 4y = 20$</p>
<p>V</p> 	<p>VI</p> 

- A** I, III, and VI
- B** I, IV, and VI
- C** II, III, and V
- D** II, IV, and V

- 12 Which of the following points are on the line parallel to line m and passing through point P ?



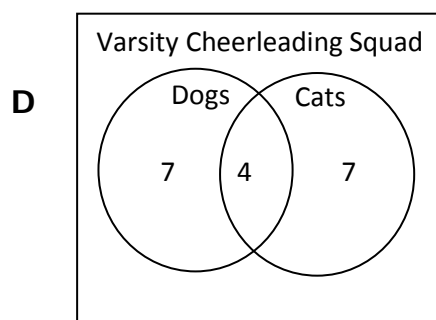
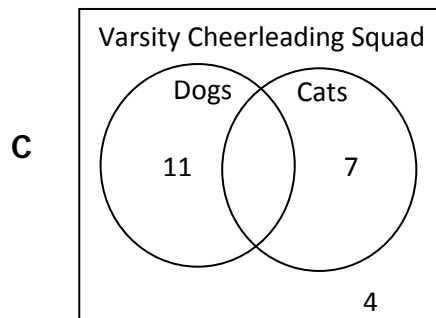
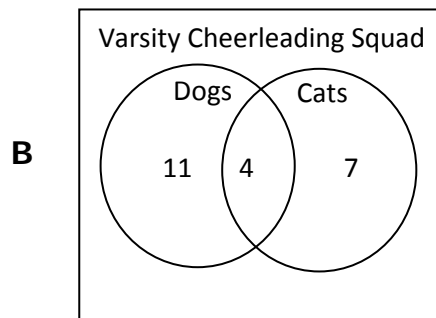
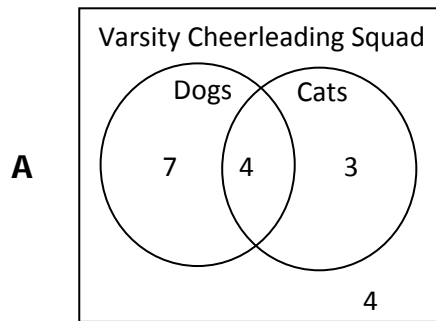
I	$(0, 1)$	II	$(-2, -4)$	III	$(-4, 6)$
IV	$(0, 0)$	V	$(5, 0)$	VI	$(-1, 4)$

- A** II only
B I and III
C I, III, and VI
D III, V and VI

13 There are 18 people on the varsity cheerleading squad. Some of them own cats and dogs.

- 11 have dogs
- 7 have cats
- 4 have both a cat and a dog

Which Venn diagram represents the varsity cheerleading squad's pets?

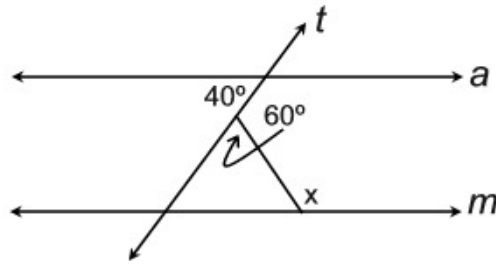


14 Select all of the following that represent a valid argument.

I	If you live in a mansion, then you have a big heating bill. Sarah does not have a big heating bill, therefore Sarah does not live in a mansion.
II	If it rains, no one will go fishing. John did not go fishing. It rained Tuesday.
III	Jamal knows that if he misses the practice the day before a game, then he will not be a starting player in the game. Jamal misses practice on Tuesday. Jamal concludes that he will not be able to start in the game on Wednesday.
IV	If Mike visits Alabama, then he will spend a day in Montgomery. If Mike spends a day in Montgomery, then he will visit the Civil Rights Memorial. If Mike visits Alabama, then he will visit the Civil Rights Memorial.
V	If Ginger goes to the movies, then Marta will go to the movies. If Yumi goes to the movies, then Ginger will go to the movies. If Ginger goes to the movies, then so do Yumi and Marta.
VI	The Oak Terrace apartment building does not allow dogs. Serena lives at Oak Terrace. So, Serena may keep a dog.

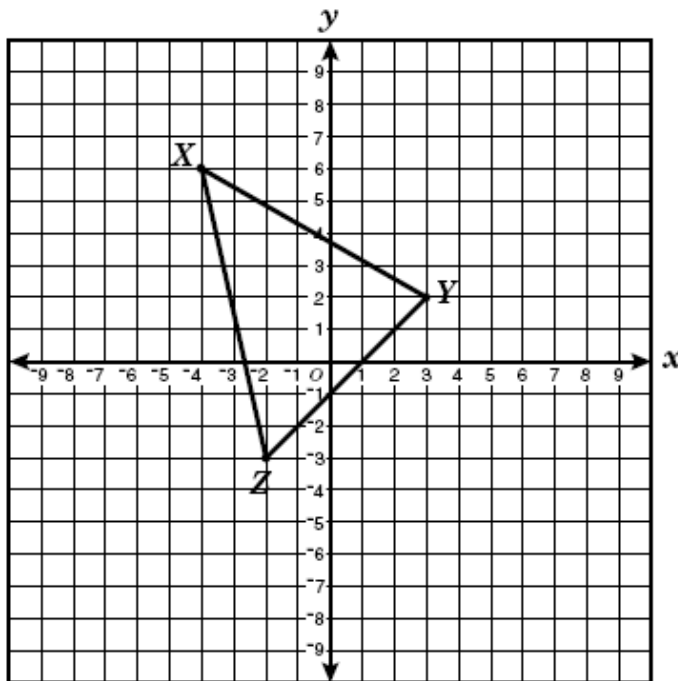
- A** I, II, III
- B** I, III, IV
- C** II, V, VI
- D** III, V, VI

15 Lines a and m are parallel with transversal t . Find the value of x .



- A 80°
- B 100°
- C 120°
- D 140°

16



If triangle XYZ is reflected across the x -axis to form triangle $X'Y'Z'$, what are the coordinates of Z' ?

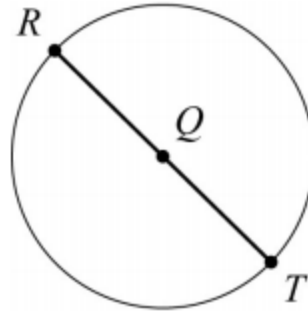
- A $(2, -3)$
- B $(2, 3)$
- C $(-2, 3)$
- D $(3, 2)$

- 17 Consider the beginning of a construction of a square inscribed in circle Q .

Step 1: Label point R on circle Q .

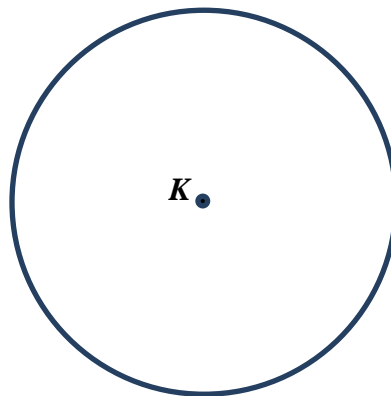
Step 2: Draw a diameter through R and Q .

Step 3: Label the intersection on the circle point T .

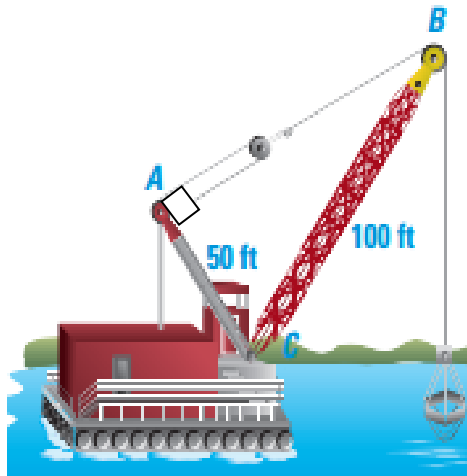


What is the next step in this construction?

- A Draw radius \overline{SQ}
 - B Label point S on circle Q
 - C Construct a line segment parallel to \overline{RT}
 - D Construct the perpendicular bisector of \overline{RT}
- 18 Construct equilateral triangle HIJ inscribed in circle K . Label vertices H , I , J . Leave all construction markings.



19



A crane operator can raise or lower the boom to adjust the angle needed to perform a job. If the mast \overline{AC} is 50 feet long, and the boom \overline{BC} is 100 feet long, and they meet at right angle A , which inequality statement best represents the angle measures of the crane?

- A $m\angle ABC < m\angle ACB < m\angle BAC$
- B $m\angle BCA < m\angle ABC < m\angle BAC$
- C $m\angle BAC < m\angle BCA < m\angle ABC$
- D $m\angle BAC < m\angle ABC < m\angle ACB$

20 Select all of the following measurements that could form the lengths of the sides of a right triangle.

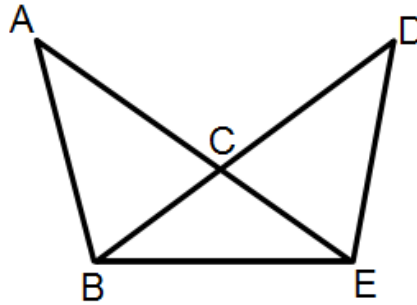
I	6, 8, 10	II	10, 24, 26	III	4, 4, 8
IV	9, 16, 25	V	9, 12, 15	VI	11, 12, 20

- A I, II, VI
- B I, II, V
- C III, V, VI
- D III, IV, VI

21 Jordan and Matt are camping. They decide to hike 4.6 miles northwest and then turn and hike 1.8 miles east. Which of the following is a possible measure of how far they are from camp?

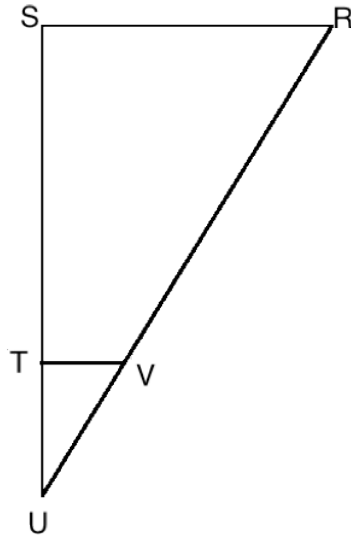
- A 1.5 miles
- B 2.8 miles
- C 5.3 miles
- D 6.4 miles

22 Given that $\overline{AB} \cong \overline{DE}$, what additional information is needed to prove $\triangle BEA \cong \triangle EBD$ by SAS?

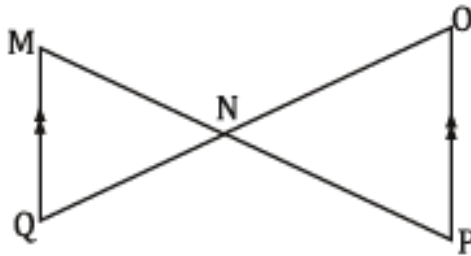


- A $\angle ABE \cong \angle DEB$
- B $\angle BAE \cong \angle EDB$
- C $\overline{AE} \cong \overline{DB}$
- D $\angle ACB \cong \angle ECB$

- 23 Given that $\Delta RSU \sim \Delta VTU$, which of the following is NOT a correct proportion?

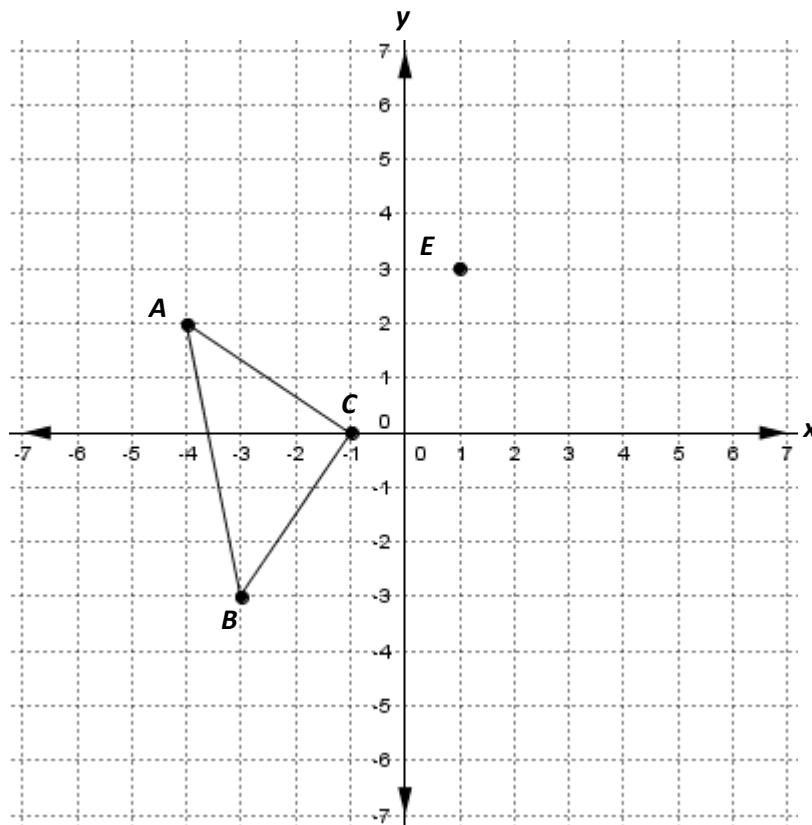


- A $\frac{SR}{VT} = \frac{SU}{TU}$
- B $\frac{RU}{VU} = \frac{SU}{TU}$
- C $\frac{TU}{SU} = \frac{TV}{SR}$
- D $\frac{TV}{SR} = \frac{SU}{ST}$
- 24 Given $\overline{MQ} \parallel \overline{OP}$, which postulate would prove $\Delta MNQ \sim \Delta PNO$.



- A SAS
- B ASA
- C SSS
- D AA

25 $\triangle ABC$ and point E are shown in the diagram below.



Determine a possible location of point D to make $\triangle ABC \cong \triangle CDE$.

- A (2, 2)
- B (4, 1)
- C (3, 1)
- D (4, 2)

26 Triangle PQR has the following angle measures.

$$m\angle P = 59^\circ$$

$$m\angle Q = 46^\circ$$

List the sides in order from greatest to least.

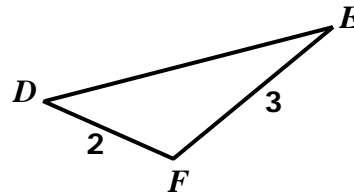
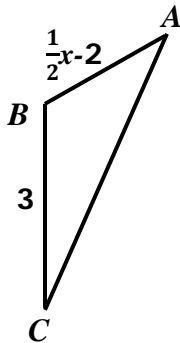
A $\overline{PR}, \overline{QR}, \overline{PQ}$

B $\overline{PQ}, \overline{PR}, \overline{QR}$

C $\overline{PR}, \overline{PQ}, \overline{QR}$

D $\overline{PQ}, \overline{QR}, \overline{PR}$

27 What value of x will make $\triangle ABC \cong \triangle DFE$?



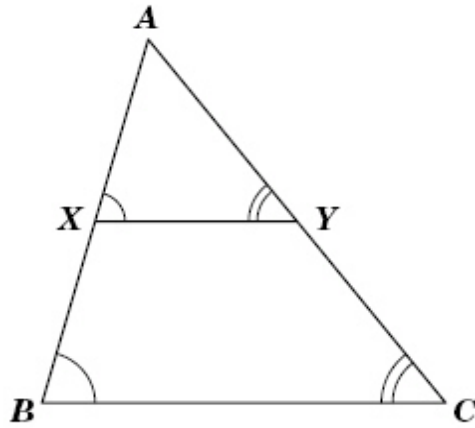
A 2

B 4

C 8

D 10

- 28 Given: $\angle AXY \cong \angle ABC$
 $\angle AYX \cong \angle ACB$



Which is a true proportion?

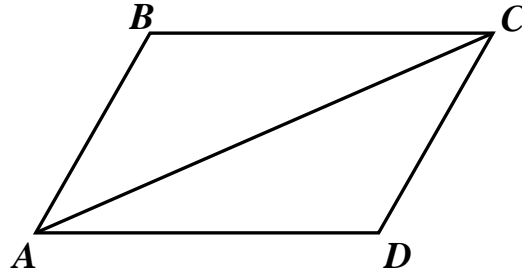
- A $\frac{AX}{AB} = \frac{AC}{AY} = \frac{XY}{BC}$
- B $\frac{AX}{XB} = \frac{AY}{YC} = \frac{XY}{BC}$
- C $\frac{XB}{AX} = \frac{YC}{AY} = \frac{BC}{XY}$
- D $\frac{AX}{AB} = \frac{AY}{AC} = \frac{XY}{BC}$

- 29 Jonathan has a square practice net in his backyard. The diagonal of the net is 6 feet. Find the length of one side of the net.

- A $3\sqrt{2}$ feet
- B $2\sqrt{3}$ feet
- C 4 feet
- D 16 feet

30 Given: $\overline{BC} \parallel \overline{AD}$; $\angle B \cong \angle D$

Prove: $\triangle BAC \cong \triangle DCA$



Statements	Reasons
1. $\overline{BC} \parallel \overline{AD}$, $\angle B \cong \angle D$	1. Given
2. $\angle BCA \cong \angle CDA$	2. Which of the following would provide the reasons for the proof?
3. $\overline{AC} \cong \overline{AC}$	3.
4. $\triangle BAC \cong \triangle DCA$	4.

- A**
 - 2. Alternate interior angles of parallel lines are congruent.
 - 3. Reflexive Property of Congruence.
 - 4. Angle-Angle-Side

- B**
 - 2. Alternate interior angles of parallel lines are congruent.
 - 3. Reflexive Property of Congruence.
 - 4. Angle-Angle

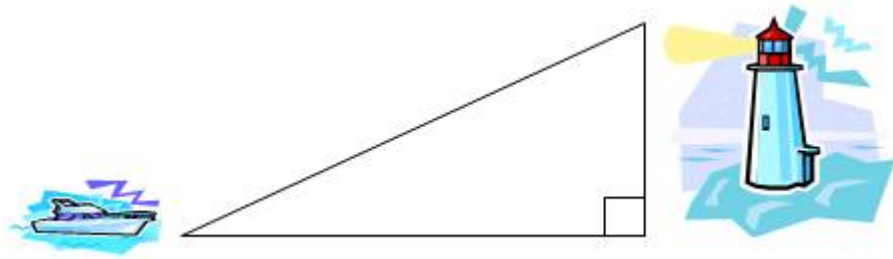
- C**
 - 2. Alternate interior angles of parallel lines are congruent.
 - 3. Reflexive Property of Congruence.
 - 4. Angle-Side-Angle

- D**
 - 2. Alternate interior angles of parallel lines are congruent.
 - 3. Reflexive Property
 - 4. Side-Angle-Side

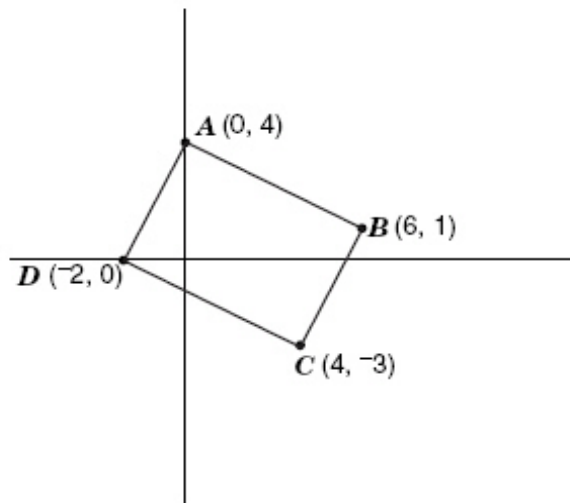


- 31 A dump truck has a 12 foot bed. If the dump truck is loaded with heavy stone and must rise to an angle of 36° before the stone will spill out, approximate how high must the front of the bed rise to unload?
- A 6 feet
 - B 7 feet
 - C 9 feet
 - D 10 feet

- 32 The distance from the boat to the base of the lighthouse is 412 feet. From the top of a 210 foot tall lighthouse, find the angle of depression to the boat.



- A 27°
B 47°
C 63°
D 110°
- 33 The town plaza in a certain town is a parallelogram. The town's planning committee has decided to build a fountain at the center of the plaza. This sketch shows the corner points when placed on a coordinate grid.

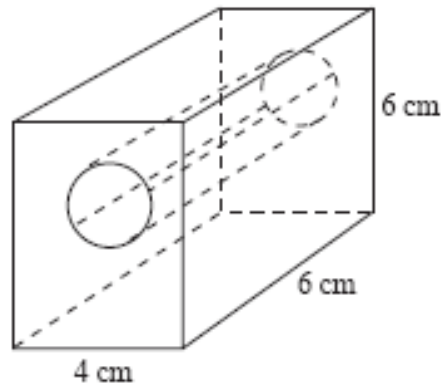


Which coordinates show where the fountain will be located?

- A (2, 0.5)
B (0.5, 2)
C (3, 1.5)
D (1.5, 1)

34 A circular pizza has a diameter of 18 inches and is cut into 12 slices. To the nearest tenth of a square inch, which answer represents the area of one slice?

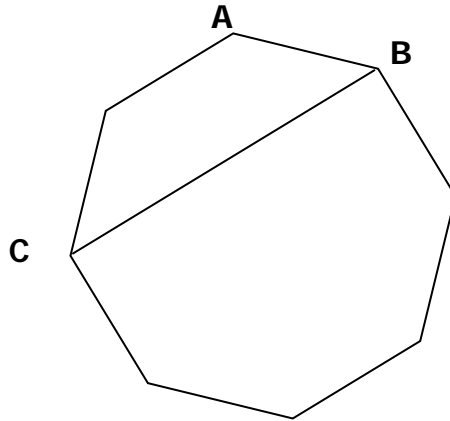
- A 84.8 in.²
- B 25.4 in²
- C 113.0 in²
- D 21.2 in²



35 The diagram shows a wooden block that has had a hole drilled in it. The diameter of the hole is 2 cm. What is the volume of the solid?

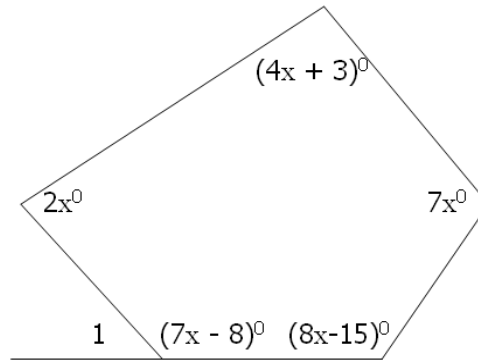
- A 68.6 cm³
- B 144 cm³
- C 125.15 cm³
- D 162.85 cm³

- 36 In the figure below, \overline{BC} is a diagonal of a regular octagon. Find $m\angle ABC$.

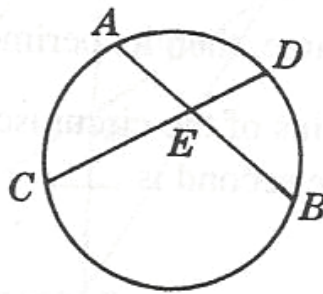


- A 36°
B 45°
C 60°
D 135°
- 37 Which statement below does NOT prove that quadrilateral $ABCD$ is a rhombus?
- A $\overline{AC} \perp \overline{BD}$
B The diagonals both bisect opposite angles.
C $\overline{AB} \cong \overline{AD} \cong \overline{DC} \cong \overline{BC}$
D $\angle DAB \cong \angle DCB$

- 38 Find the measure of angle 1.



- A 20°
- B 48°
- C 72°
- D 132°



- 39 A circular flower bed is to be divided into four sections as shown in the diagram below. If the measure of $\widehat{DB} = 65^\circ$ and $m\angle CEB = 100^\circ$, what is $m\widehat{AC}$?

- A 90°
- B 95°
- C 135°
- D 82.5°

40 Which is an equation of a circle with diameter 8 and center at (3, -2).

A $(x + 3)^2 + (y - 2)^2 = 64$

B $(x + 3)^2 + (y - 2)^2 = 16$

C $(x - 3)^2 + (y + 2)^2 = 64$

D $(x - 3)^2 + (y + 2)^2 = 16$

41 A cylinder has a diameter of 12 cm and a curved surface area of 132π . Determine the height of the cylinder.

A 3.67 cm

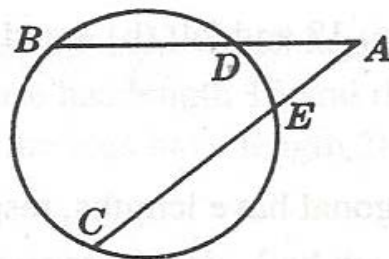
B 5.00 cm

C 5.50 cm

D 11.0 cm

42 In the figure below, $AE = 6$, $EC = 8$, and $AD = 4$.

What is the value of BD ?



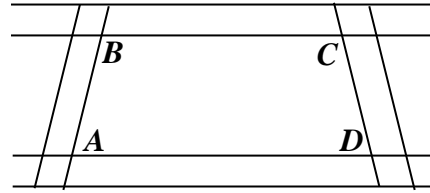
A 17

B 12

C 21

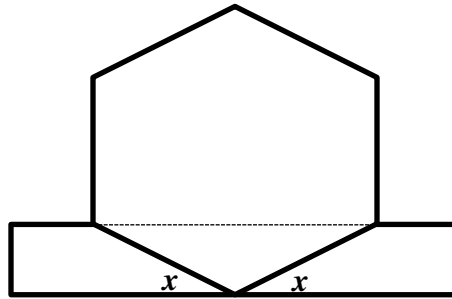
D 28

- 43 The aerial view of a city park is in the shape of an isosceles trapezoid $ABCD$. If $m\angle A = 50^\circ$, find the $m\angle C$.



- A 50°
B 100°
C 130°
D 180°
- 44 The center of the circle is $(4, -1)$ and contains point $(-1, 3)$. What is the equation of the circle?
- A $(x - 4)^2 + (y + 1)^2 = 49$
B $(x - 4)^2 + (y + 1)^2 = 41$
C $(x + 4)^2 + (y - 1)^2 = 169$
D $(x + 4)^2 + (y - 1)^2 = 13$
- 45 Two similar rectangular prisms have side lengths with a ratio of 2:5. What is the ratio of their surface areas?
- A 4:10
B 4:25
C 6:15
D 8:125

- 46 This figure is composed of a regular hexagon and a rectangle.



What is the measure of the angles identified as x ?

- A 30°
B 45°
C 60°
D 120°
- 47 Which is an equation of a circle which has as a diameter that joins the points $(-3, 5)$ and $(7, -3)$?
- A $(x + 2)^2 + (y + 1)^2 = 85$
B $(x - 5)^2 + (y - 2)^2 = 85$
C $(x - 2)^2 + (y - 1)^2 = 41$
D $(x + 5)^2 + (y - 2)^2 = 41$

48 Dedra has a recycling box in the shape of a cube. She wishes to increase the size of the box by extending every edge of the box by half of its original length. Which of the following statements will be true after the box is increased in size?

- A** The volume of the new box is exactly 112.5% of the volume of the original box.
- B** The volume of the new box is exactly 150% of the volume of the original box.
- C** The volume of the new box is exactly 337.5% of the volume of the original box.
- D** The volume of the new box is exactly 450% of the volume of the original box.

49 A city is planning to replace one of its water storage tanks with a larger one. The city's old tank is a right circular cylinder with a radius of 12 feet and a volume of 10,000 cubic feet. The new tank is a right circular cylinder with a radius of 15 feet and the same height as the old tank. What is the maximum number of cubic feet of water the new storage tank will hold?

- A** 22.1 cubic feet
- B** 265.3 cubic feet
- C** 12,500 cubic feet
- D** 15,625 cubic feet

50 Wilma made a decorative piece shaped like a square pyramid with the dimensions shown. She wants to double the volume of the piece. Which of the following square pyramid pieces will have a volume that is twice the volume of Wilma's decorative piece?

