VIRGINIA
STANDARDS OF LEARNING ASSESSMENTS

Spring 2004 Released Test

END OF COURSE
GEOMETRY
CORE 1

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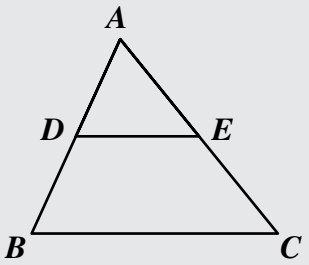
DIRECTIONS
Read and solve each question. Then mark the space on the answer sheet for the best answer.

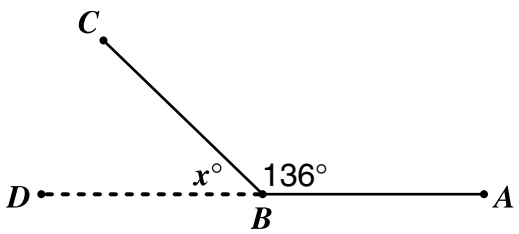
SAMPLE



If ΔABC is similar to ΔADE, then $AB : AD = ? : AE$. Which replaces the "?" to make the statement true?

A AC
B AE
C DE
D BC

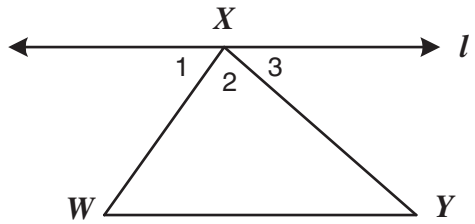
1 **A plumber bent a flexible joint into a 136° angle, as shown. He then attached another pipe so that *A*, *B*, and *D* lay on a straight line.**



What is the value of *x*?

A 36
B 44
C 46
D 224

2



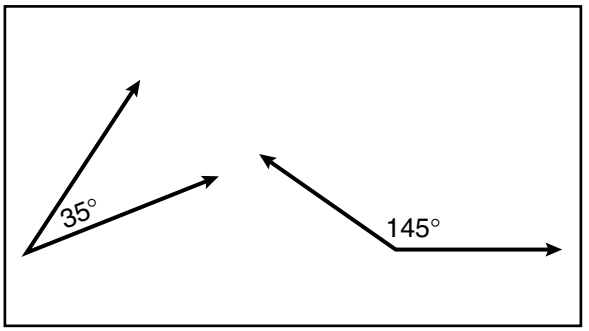
If $\angle 3 \cong \angle Y$, which of the following must be true?

F $\angle W \cong \angle Y$
G $\overline{WX}$ is perpendicular to $\overline{XY}$
H $\angle W \cong \angle 2$
J Line l is parallel to $\overline{YW}$

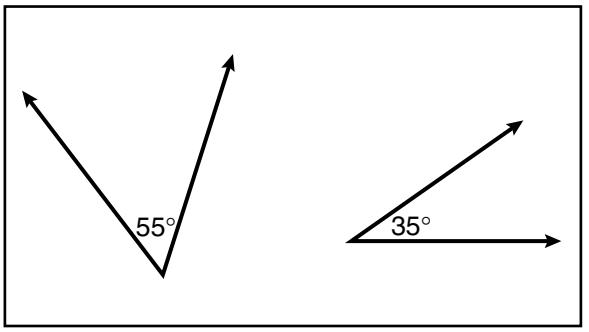
GO ON

3 Which pair of angles is supplementary?

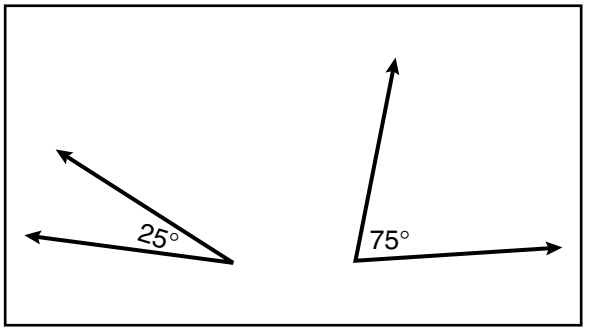
A



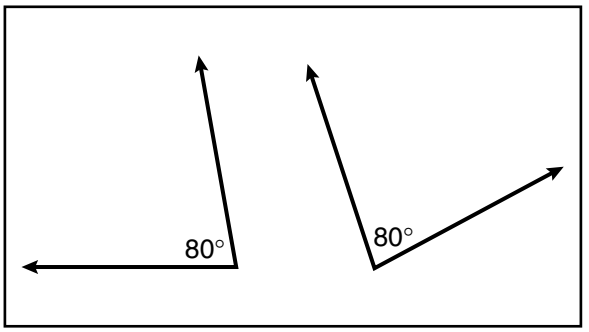
B



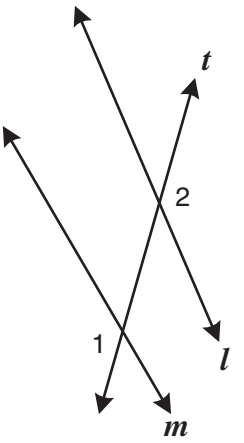
C



D



4 In the figure, line *t* is a transversal for lines *l* and *m*.

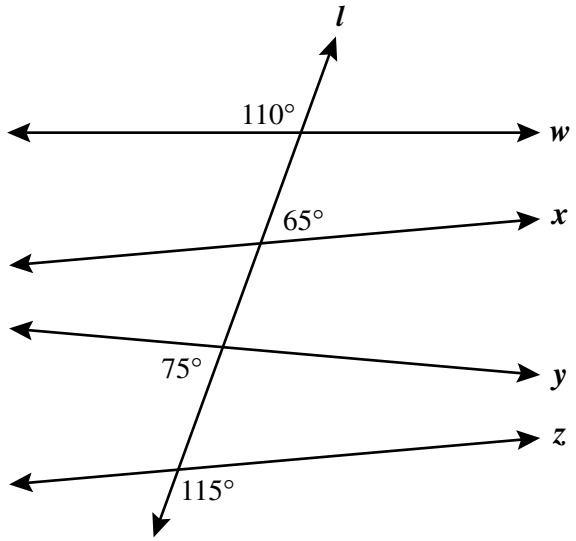


Which of the following best describes the relationship between ∠1 and ∠2?

F Alternate interior angles
G Consecutive interior angles
H Corresponding angles
J Alternate exterior angles

GO ON

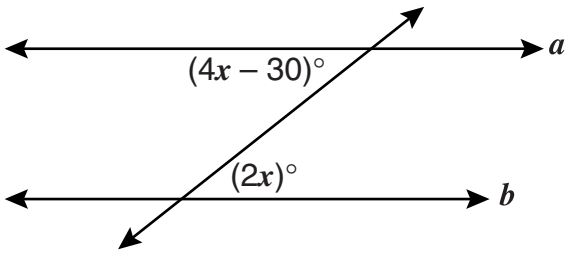
5 **Line l intersects lines w, x, y, and z, forming angles with measures as indicated on the drawing.**



Which two lines are parallel?

A w and x
B x and z
C y and z
D w and y

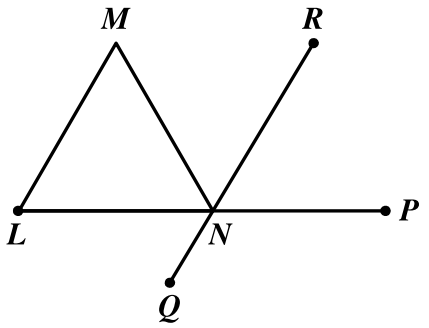
6



Which value for x will make a parallel to b?

F 5
G 15
H 20
J 35

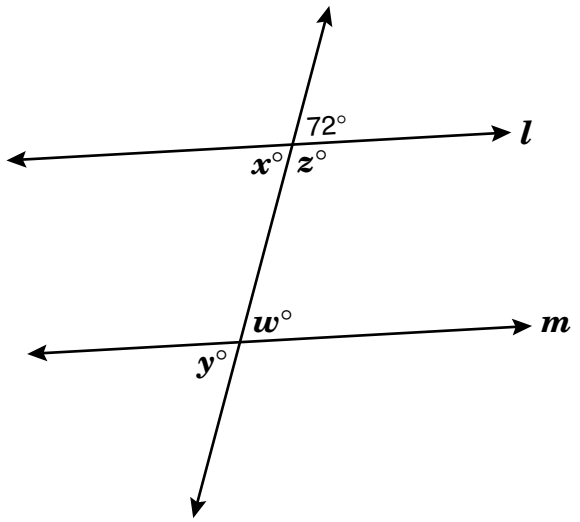
7 **In the figure drawn below, $\overleftrightarrow{LM}$ and $\overleftrightarrow{QR}$ are parallel and $m\angle M = m\angle L = 60°$.**



What is $m\angle QNP$?

A 90°
B 120°
C 150°
D 180°

8

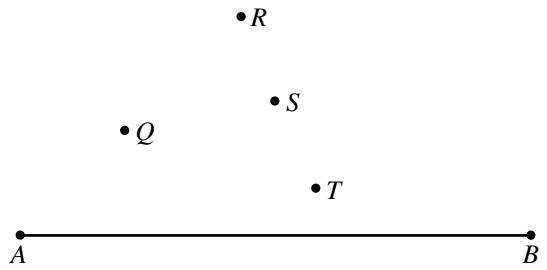


Which additional piece of information would verify $l \parallel m$?

F $x = 72$
G $y = w$
H $z = 108$
J $x = w$

GO ON

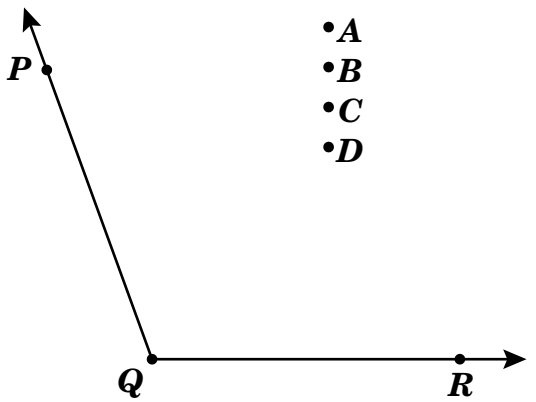
9



Which point lies on the line perpendicular to $\overline{AB}$ that bisects $\overline{AB}$?

A Q
B R
C S
D T

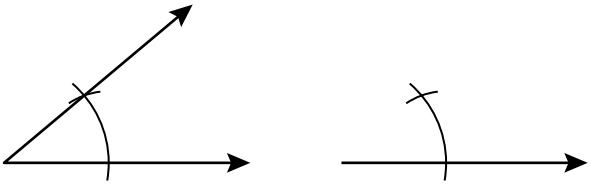
10



Which point lies on the bisector of $\angle PQR$?

F A
G B
H C
J D

11



The drawing shows the arcs used to construct —

A a bisector of a given angle
B an angle congruent to a given angle
C a bisector of a given line
D a perpendicular of a given line at a point on the line

GO ON

12 Consider the following arguments. If the first two statements are true, in which argument is the 3rd statement an *incorrect* conclusion?

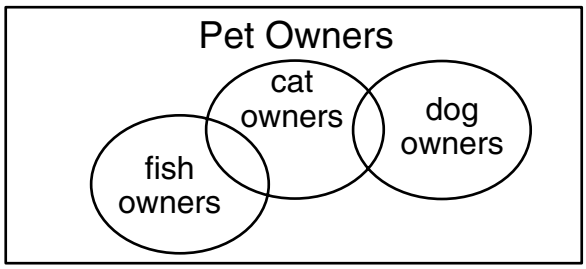
F
1 If John studies, then he will pass the test.
2 If John passes the test, then he will not be grounded.
3 If John is grounded, then he will study.

G
1 If it rains, then we will stay inside.
2 If we stay inside, then we will play games.
3 If it rains, then we will play games.

H
1 If we win the game, then we will win the championship.
2 If we win the championship, then we will get a trophy.
3 If we do not get a trophy, then we did not win the game.

J
1 If Susan eats her broccoli, then she will get ice cream.
2 If Susan gets ice cream, then she will stay up late.
3 If Susan eats her broccoli, then she will stay up late.

13



Based strictly on this diagram, which is a valid conclusion?

A No cat owners also own dogs.
B No dog owners also own fish.
C No fish owners also own cats.
D No pet owner owns more than one pet.

14 Consider the following statements.

***p*: The sum of two angles is 90°.**
***q*: The two angles are complements.**

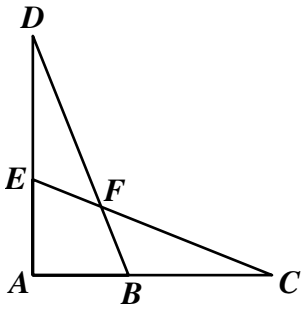
Which of the following is a symbolic representation of the statement:

If two angles are not complements, then the sum of the two angles is not 90°?

F $\sim q \rightarrow \sim p$
G $\sim p \rightarrow \sim q$
H $q \rightarrow p$
J $p \rightarrow q$

GO ON

15 **Given: $\overline{AD} \cong \overline{AC}$ and $\overline{AB} \cong \overline{AE}$**



Which could be used to prove $\Delta ADB \cong \Delta ACE$?

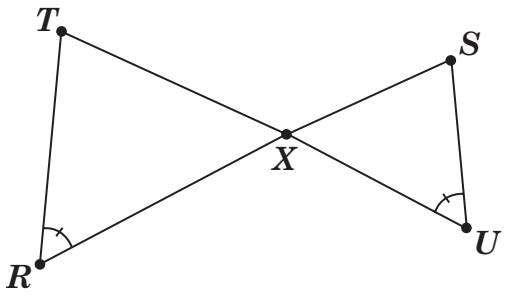
A (SSS) If 3 sides of one triangle are congruent to 3 sides of another triangle, then the triangles are congruent.

B (SAS) If 2 sides and the angle between them in one triangle are congruent to 2 sides and the angle between them of another triangle, then the triangles are congruent.

C (ASA) If 2 angles and the sides between them are congruent to 2 angles and the side between them of another triangle, then the triangles are congruent.

D (AAS) If 2 angles and a side not between them are congruent to 2 angles and the side not between them of another triangle, then the triangles are congruent.

16 **Given: $\angle R \cong \angle U$.**



Which proportion is true?

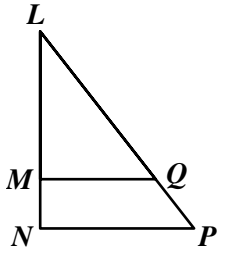
F $\frac{RT}{US} = \frac{TX}{SX}$

G $\frac{RX}{UX} = \frac{RT}{XS}$

H $\frac{RT}{US} = \frac{SX}{TX}$

J $\frac{XT}{RX} = \frac{RT}{UX}$

17



Given: $\Delta LMQ \sim \Delta LNP$. Therefore —

A $\frac{LM}{MN} = \frac{PQ}{QL}$

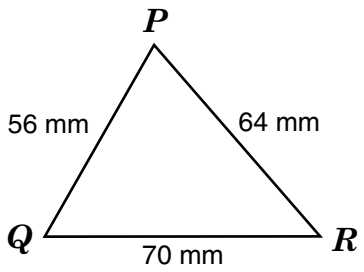
B $\frac{LN}{LM} = \frac{NP}{MQ}$

C $\frac{LM}{LP} = \frac{MN}{QP}$

D $\frac{LN}{LP} = \frac{LQ}{LM}$

GO ON

18



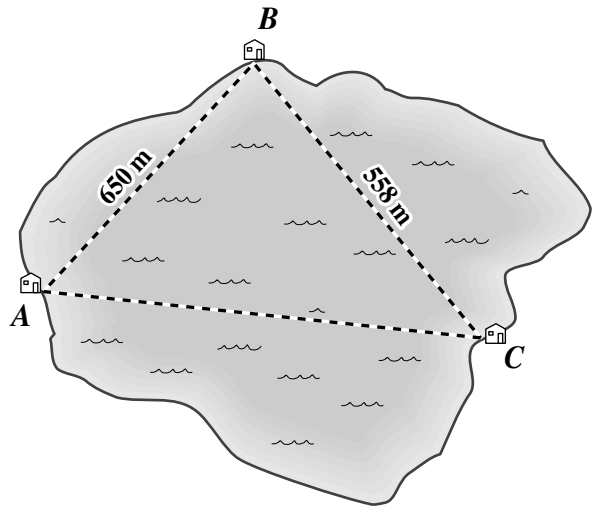
From smallest to largest, the angles of ΔPQR are —

F $\angle R, \angle Q, \angle P$
G $\angle R, \angle P, \angle Q$
H $\angle Q, \angle R, \angle P$
J $\angle P, \angle R, \angle Q$

19 Which set of lengths could *not* be the lengths of the sides of a triangle?

A 7 in., 24 in., 30 in.
B 8 ft, 10 ft, 12 ft
C 4 cm, 5 cm, 9 cm
D 2 m, 3 m, 4 m

20



The locations of three water pumping stations form a triangle on a map of the area. The distance from station *A* to station *B* is 650 meters. The distance from station *B* to station *C* is 558 meters. The distance from station *A* to station *C* is —

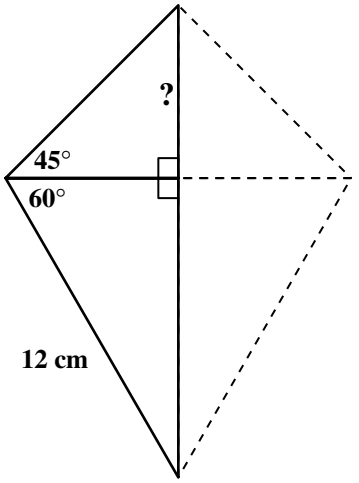
F less than 92 m
G exactly 92 m
H between 92 m and 1,208 m
J greater than 1,208 m

21 The top of a ladder is leaning on a building at a point 12 feet above the ground; the bottom of the ladder is 5 feet from the base of the building. What is the length of the ladder?

A 19 ft
B 17 ft
C 13 ft
D 7 ft

GO ON

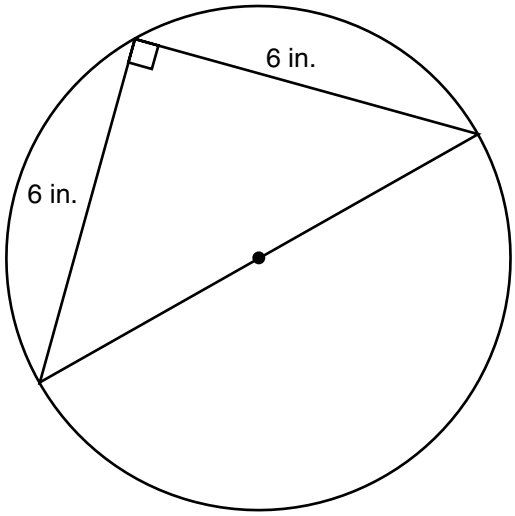
22



A design is formed by joining isosceles right triangles and 60°-30° right triangles as shown in the diagram. If the hypotenuse of the 60°-30° triangle is 12 centimeters, which is *closest* to the length of one leg of the isosceles right triangle?

F 6 cm
G 7.2 cm
H 8.5 cm
J 10.4 cm

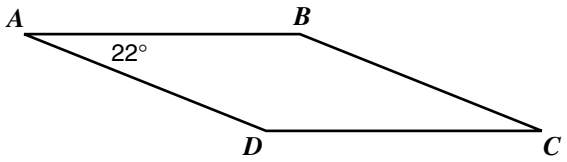
23



What is the diameter of the circle shown?

A $3\sqrt{2}$ in.
B $3\sqrt{3}$ in.
C $6\sqrt{2}$ in.
D $6\sqrt{3}$ in.

24

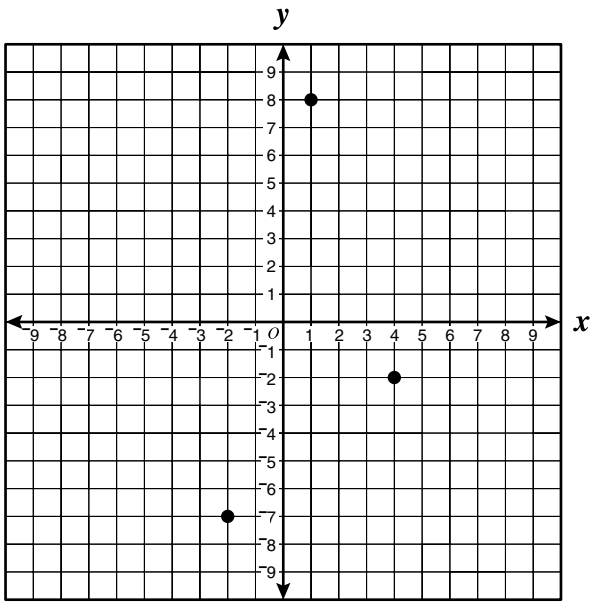


Quadrilateral *ABCD* is a parallelogram. The measure of $\angle C$ is —

F 22°
G 68°
H 112°
J 158°

GO ON

25 The vertices of parallelogram *ABCD* have coordinates *A*(1, 8), *B*(4, −2), and *C*(−2, −7).



What are the coordinates of *D*?

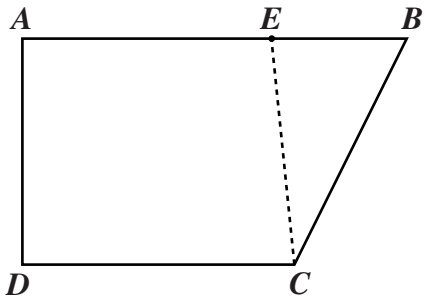
A (−5, 3)

B (−3, 5)

C (2, 3)

D (5, −3)

26 A desktop was made from the scrap of plywood shown by cutting (in a straight line) from *C* to *E*.



Which measurement would ensure that the desktop is rectangular?

F $AE = EB$

G $AC = BD$

H $EC = CD$

J $DE = CA$

27 Which of the following is *not* true about a parallelogram?

A Any two opposite sides are congruent.

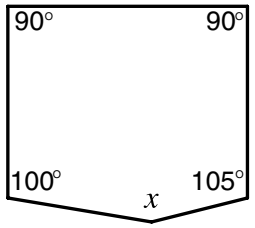
B Any two opposite angles are congruent.

C The diagonals bisect each other.

D Any two consecutive angles are complementary.

GO ON

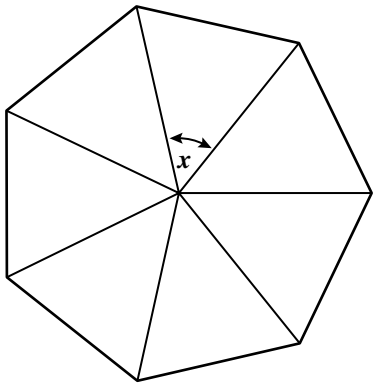
28



What is the value of x in the pentagon above?

F 90°
G 155°
H 245°
J 335°

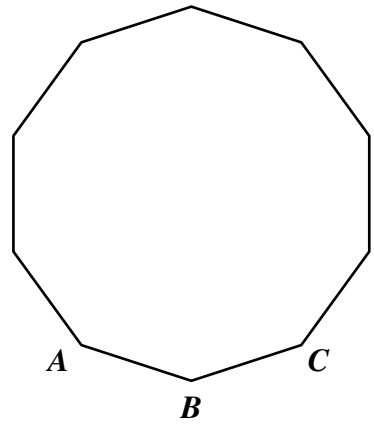
29



Which is the *closest* to the measure of a central angle x in this regular polygon?

A 40°
B 45°
C 50°
D 60°

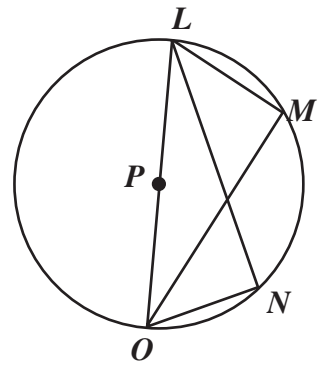
30



What is the measure of interior angle *ABC* of the regular polygon shown?

F 225°
G 180°
H 160°
J 144°

31

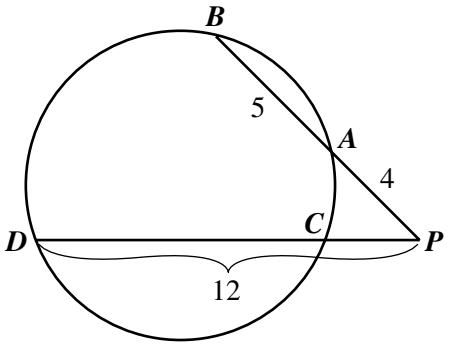


If $\overline{LO}$ is a diameter of circle P, what is m$\angle LMO$?

A 30°
B 45°
C 80°
D 90°

GO ON

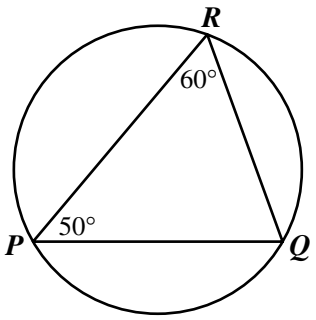
32 **Secants $\overline{PB}$ and $\overline{PD}$ intersect the circle at A and C, respectively.**



What is the length of $\overline{PC}$?

F 3
G 4
H 5
J 6

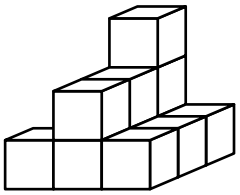
33 **The figure shows a circle. m$\angle RPQ$ = 50° and m$\angle PRQ$ = 60°.**



What is the measure of $\overset{\frown}{PR}$?

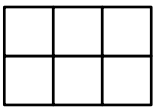
A 70°
B 100°
C 120°
D 140°

34

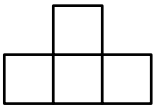


Which could be the view of this stack of cubes from directly above?

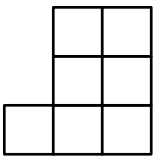
F



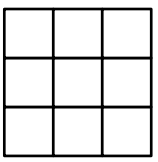
G



H

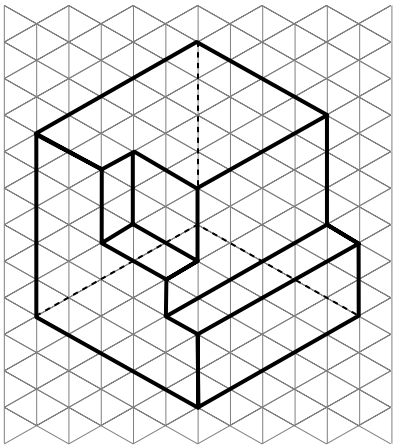


J



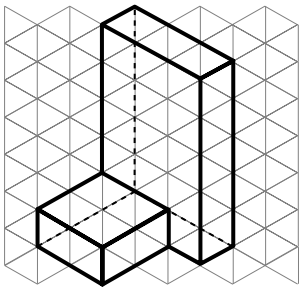
GO ON

35

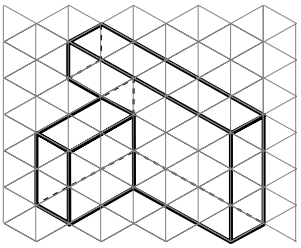


Which piece completes this cube?

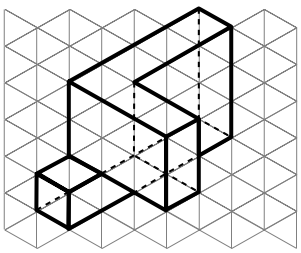
A



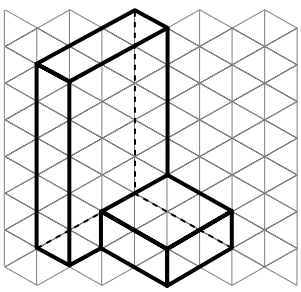
B



C



D



36 A tepee in the shape of a right cone has a slant height of 18.5 feet and a diameter of 20 feet. Approximately how much canvas would be needed to cover the tepee?

F 581 sq ft

G 116 sq ft

H 89 sq ft

J 58 sq ft

37 The Great Pyramid at Giza has a square base with sides of length 230 meters and a height of 146.7 meters. Approximately what is the volume of the Great Pyramid?

A 1,650,000 m^3

B 2,590,000 m^3

C 4,950,000 m^3

D 7,760,000 m^3

38 The ratio of the circumference of two circles is $\frac{3}{2}$. The radius of the smaller circle is 8 inches. What is the radius of the larger circle?

F $5\frac{1}{3}$ inches

G 6 inches

H 9 inches

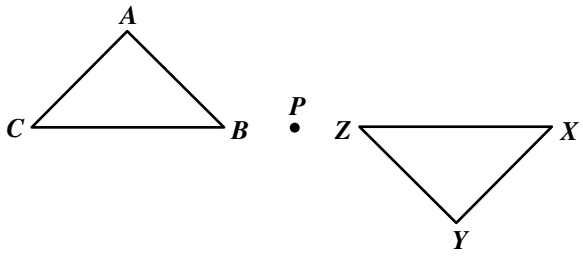
J 12 inches

GO ON

39 Two ships leaving the same marina at the same time are 3.2 miles apart after sailing 2.5 hours. If they continue at the same rate and direction, how far apart will they be 2 hours later?

A 2.56 mi
B 3.52 mi
C 5.76 mi
D 6.08 mi

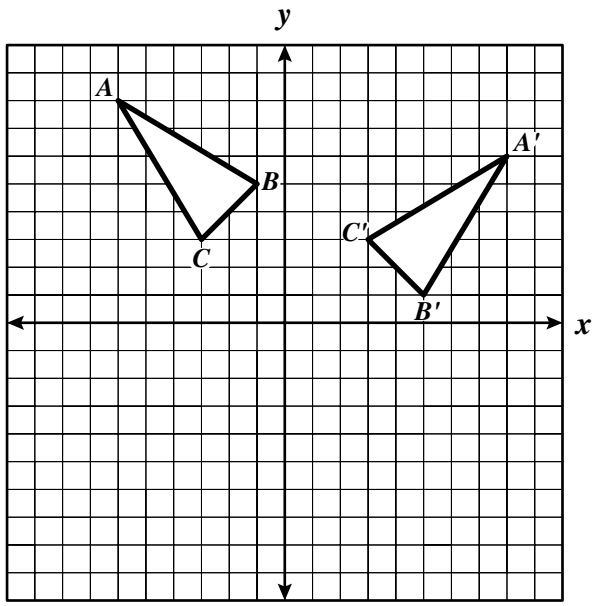
40 ΔXYZ was obtained from ΔABC by a rotation about the point P.



Which of the following indicates the correspondence of the vertices?

F $A \rightarrow X, B \rightarrow Y, C \rightarrow Z$
G $A \rightarrow Y, B \rightarrow Z, C \rightarrow X$
H $A \rightarrow X, B \rightarrow Z, C \rightarrow Y$
J $A \rightarrow Z, B \rightarrow X, C \rightarrow Y$

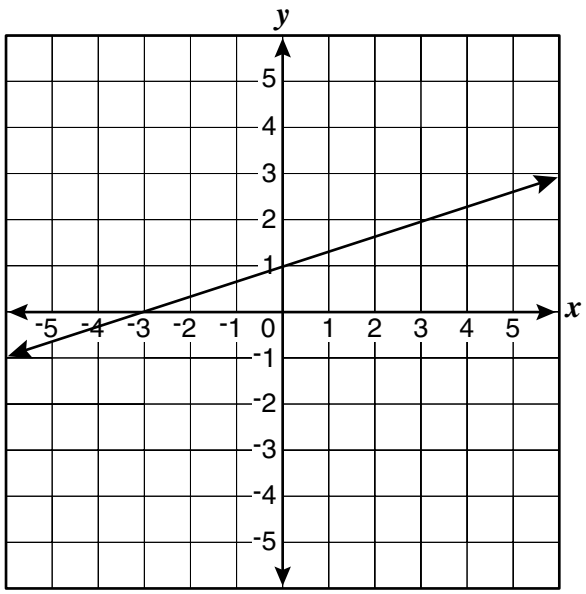
41



Triangle $A'B'C'$ is apparently —

A a translation of triangle ABC across the x-axis
B a 90° clockwise rotation of triangle ABC about the origin
C a reflection of triangle ABC across the y-axis
D a reflection of triangle ABC across the x-axis

42



What is most likely the slope of the line graphed above?

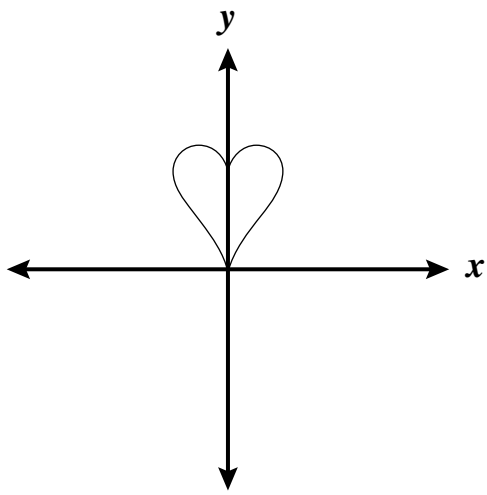
F $\frac{1}{3}$

G $\frac{2}{3}$

H 2

J 3

43



This figure is apparently symmetric with respect to —

A the x-axis only

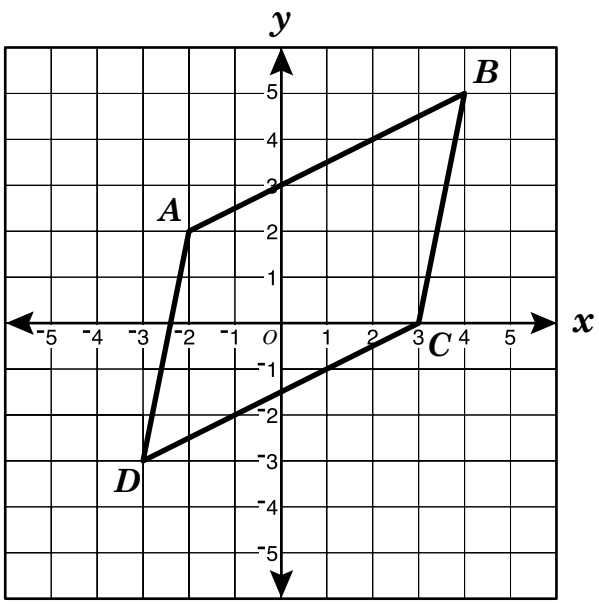
B the y-axis only

C both the x-axis and the y-axis

D neither the x-axis nor the y-axis

GO ON

44



What are the apparent coordinates of the midpoint of diagonal $\overline{AC}$?

F $\left(\frac{1}{2}, -1\right)$

G $\left(\frac{1}{2}, 1\right)$

H $\left(1, \frac{1}{2}\right)$

J $(1, 1)$

45 The distance between the points $(-2, -4)$ and $(3, 8)$ is —

A $\sqrt{17}$

B 13

C 17

D 169

GO ON