35 Which is closest to the total surface area of a cylinder with a radius of 5 inches and a height that is equal to its diameter?

A 314 sq in.

B 471 sq in.

C 596 sq in.

D 785 sq in.

$$S.A. = 2\pi r^2 + 2\pi r h$$

37 The radius of Sphere A is 2 inches, and the radius of Sphere B is 4 inches. How many times larger is the volume of Sphere B compared to the volume of Sphere A ?

A 2

B 3

C 4

D 8

radius is 2 times as large
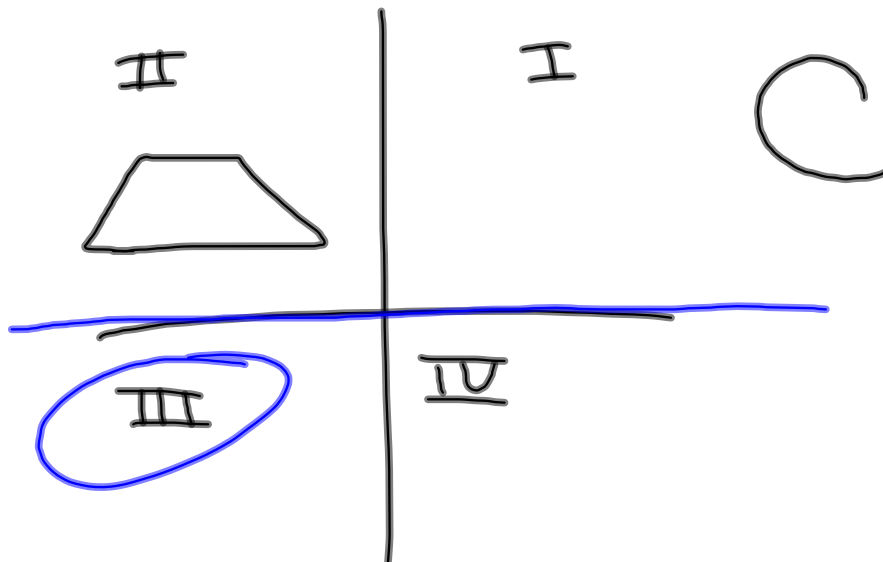
$$\frac{4}{3}\pi r^3$$

$$(2r)^3 = 8r^3$$

1

38 A cylinder has a diameter of 10 inches and a height four times its radius. What is its volume?

F 500π cu in.

G 2,000π cu in.

H 4,000π cu in.

J 40,000π cu in.
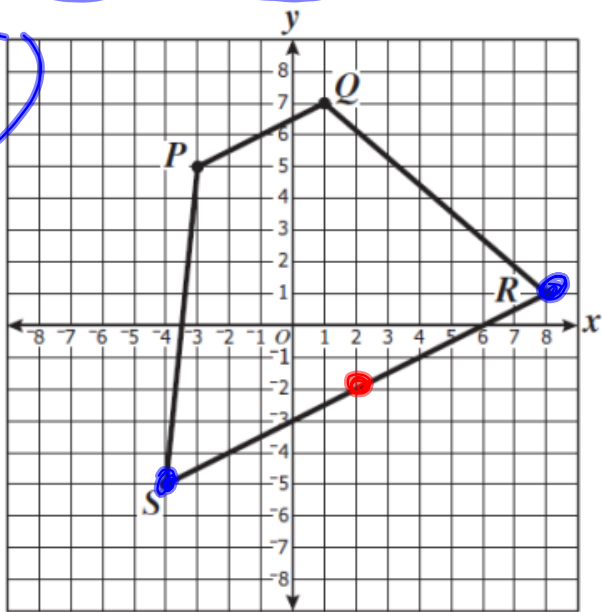
$$V = \pi r^2 h$$
$$= \pi 5^2 \cdot 20$$
$$= 500\pi$$

40 A trapezoid is located entirely in quadrant II. If this trapezoid is reflected across the x-axis, in which quadrant will the new trapezoid be located?

F I

G II

H III

J IV

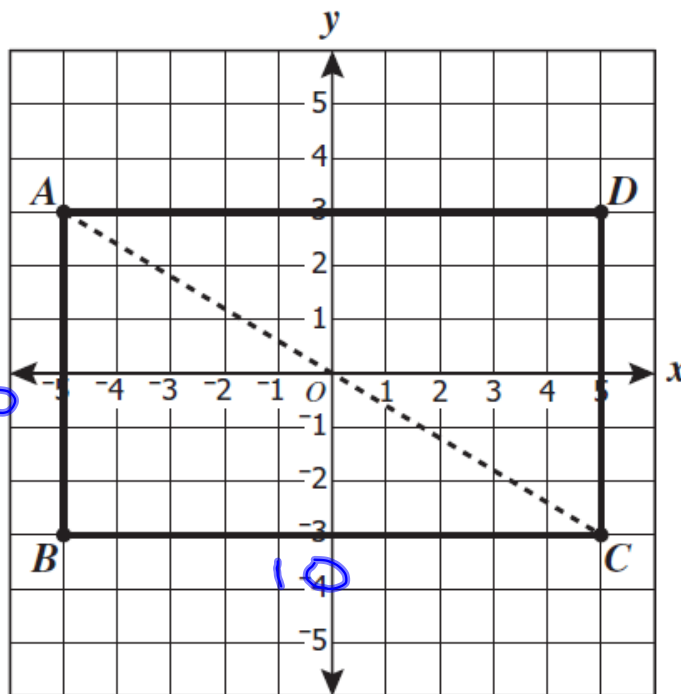**39** $P(^-3, 5)$, $Q(1, 7)$, $R(8, 1)$, and $S(^-4, ^-5)$ are connected to form a trapezoid.

$$\left(\frac{8 + ^-4}{2}, \frac{1 + ^-5}{2}\right)$$

$$(2, ^-2)$$

What is the midpoint of $\overline{SR}$?

A $(0, ^-3)$

B $(4, ^-1)$

C $(3, ^-1.5)$

D $(2, ^-2)$

41 Rectangle $ABCD$ is placed on a grid as shown.

$6^2 + 10^2 = c^2$

$36 + 100 = c^2$

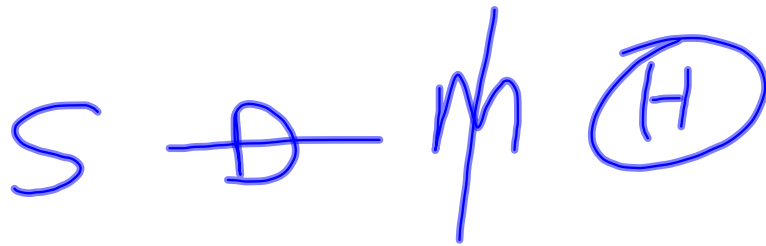$\sqrt{136} = \sqrt{c^2}$

$c \approx 11.6$

Which is *closest* to the length of diagonal $\overline{AC}$?

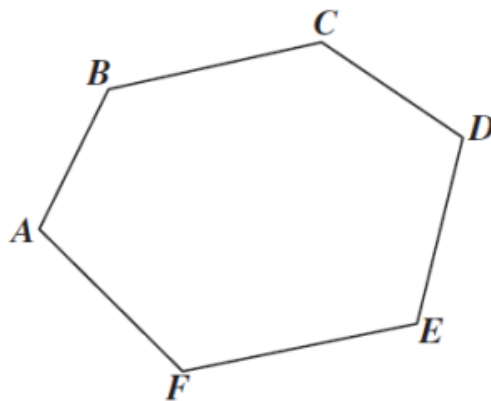**42** Which of the following letters has both line symmetry and point symmetry?
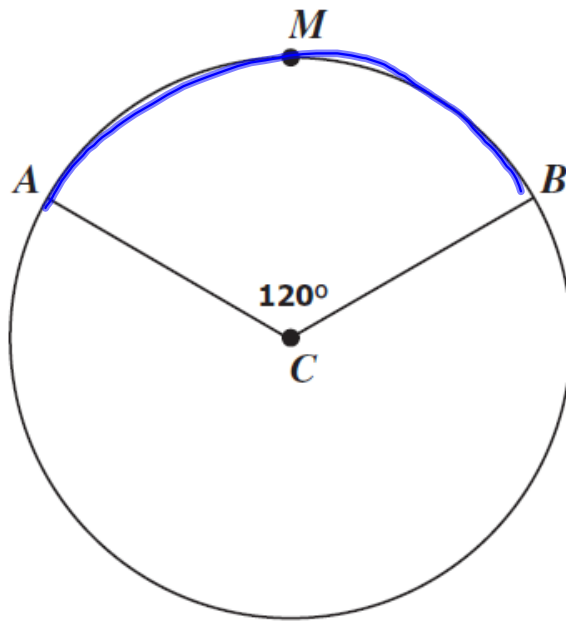
S D M H

F S
G D
H M
J H

(handwritten: S ~~D~~ M (H))

28

Given the polygon shown above, $m\angle A + m\angle F + m\angle E + m\angle D + m\angle C + m\angle B =$

(handwritten:)
$$(n-2)\cdot 180$$
$$(6-2)\cdot 180 = 720°$$
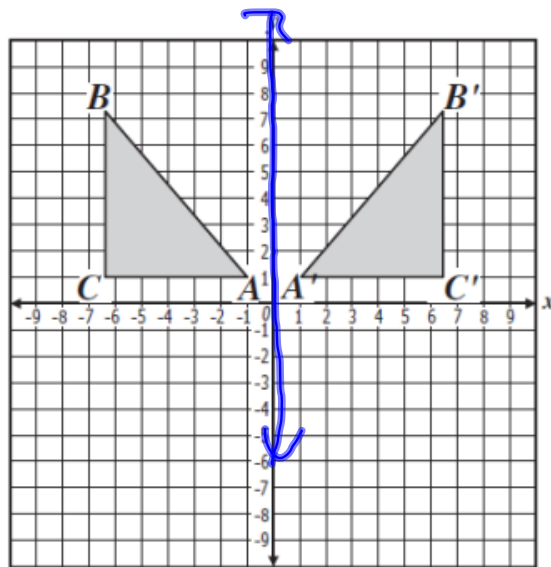
29 The circumference of circle C is 144π.

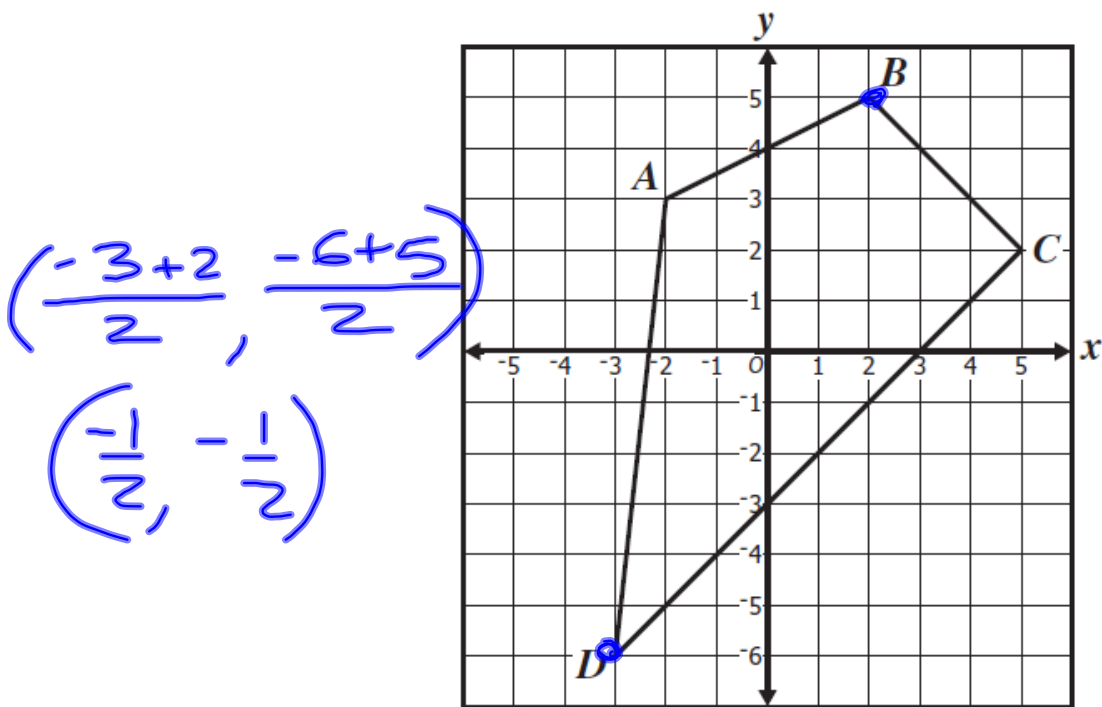$$\frac{120}{360} \cdot 144\pi$$

$$48\pi$$

What is the length of $\overgroup{AMB}$?

A 8π

B 16π

C 48π

D 96π

43 Triangle ABC was transformed into triangle $A'B'C'$. Which term most accurately describes this transformation?

A   Tessellation

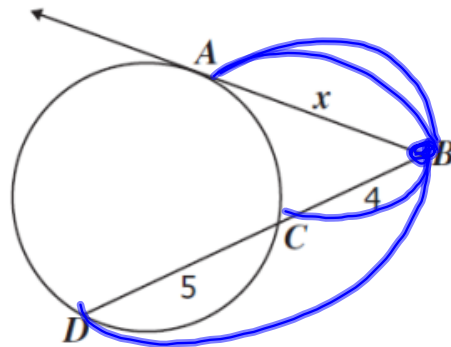**B**   Reflection

C   Rotation

D   Translation

44 A quadrilateral is placed on a grid as shown.

$$\left(\frac{-3+2}{2}, \frac{-6+5}{2}\right)$$

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

The apparent midpoint of $\overline{BD}$ is —
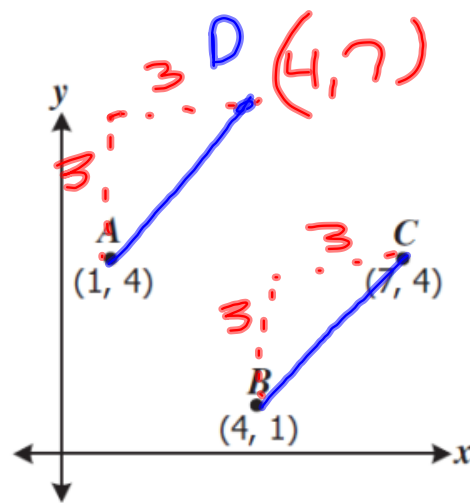
8

26 In the diagram, $\overline{AB}$ is tangent to the circle at point A, and $\overline{BD}$ intersects the circle at points C and D.

What is the value of x?

$$4 \cdot 9 = x \cdot x$$
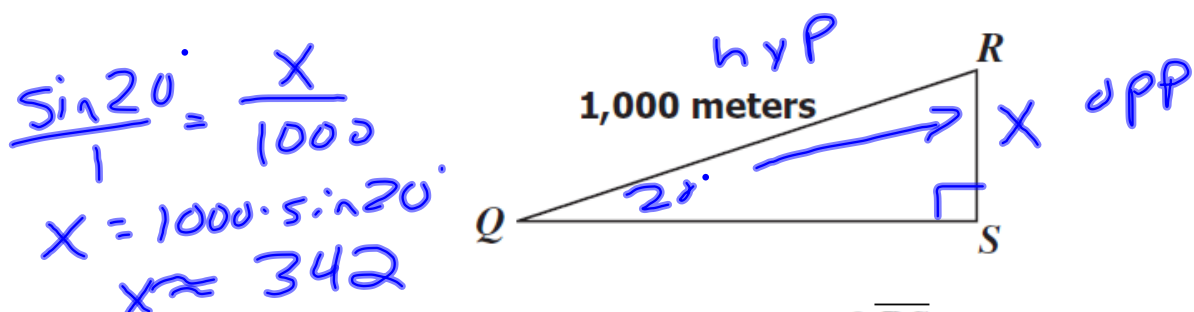$$36 = x^2$$
$$x = 6$$

27

In the drawing above, what must be the coordinates of D to show $ABCD$ is a square?

A (7, 7)

B (4, 7)

C (4, 5)

D (4, 4)

23   Given: $\triangle QRS$ where $m\angle Q = 20°$ and $m\angle S = 90°$

$\dfrac{\sin 20°}{1} = \dfrac{x}{1000}$

$x = 1000 \cdot \sin 20°$

$x \approx 342$

hyP

R
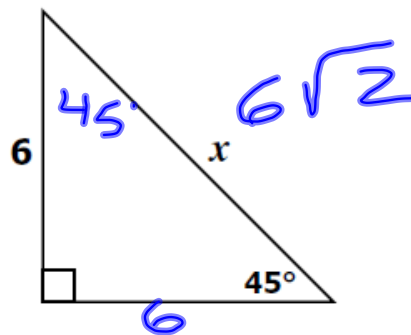
1,000 meters

x opp

$20°$

Q

S

What is the length, to the nearest meter, of $\overline{RS}$?

18   John wants to make a triangular garden. Which of the following are possible dimensions?

F   4 ft by 5 ft by 10 ft

G   6 ft by 6 ft by 12 ft

H   6 ft by 8 ft by 10 ft

J   8 ft by 12 ft by 20 ft

9
13
14

22

In the figure, what is the value of x ?

~~F   6~~

G $6\sqrt{2}$

H $6\sqrt{3}$

~~J   12~~

24

60°

A   *C*

160°

B
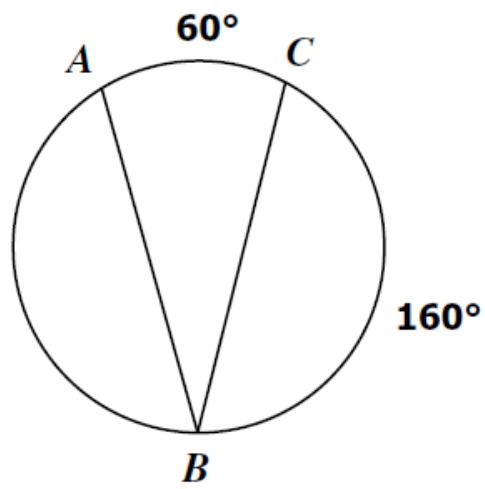
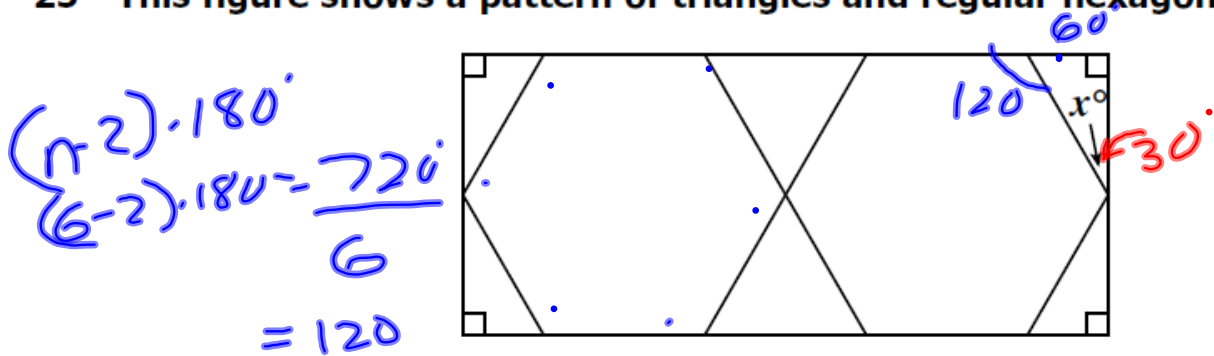**In the circle, what is the measure of** $\angle ABC$ **?**

30°

25 This figure shows a pattern of triangles and regular hexagons.

$(n-2)\cdot 180°$
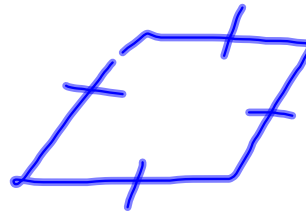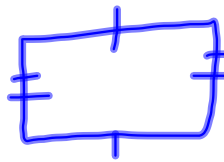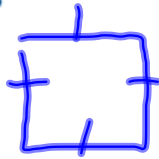
$(6-2)\cdot 180° = \dfrac{720°}{6}$

$= 120$

60°

120 $x°$

30°

What is the value of x ?

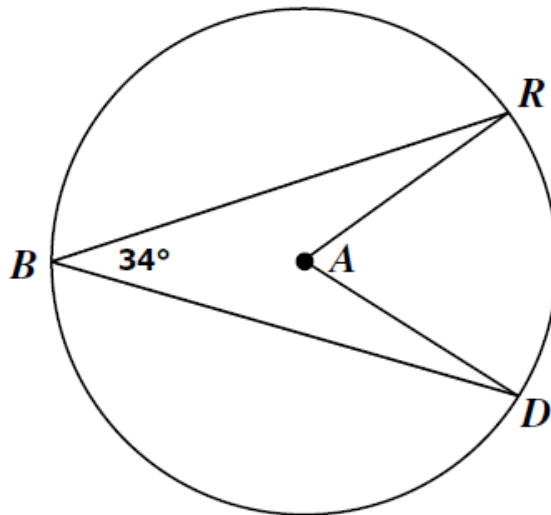ext $\angle = \dfrac{360}{5}$

$= \dfrac{360}{6}$

$= 60°$

A 30

B 60

C 90

D 120

26 Which figure has all sides of equal measure but not necessarily all angles of equal measure?

E   Square

G   Rectangle

H   Rhombus

J   Trapezoid

27   What is $m\angle DAR$ in circle A ?

35 Which is closest to the total surface area of a cylinder with a radius of 5 inches and a height that is equal to its diameter?

    A   314 sq in.
    B   471 sq in.
    C   596 sq in.
    D   785 sq in.

$$S.A. = 2\pi r^2 + 2\pi r h$$
$$= 2 \cdot \pi \cdot 5^2 + 2\pi \cdot 5 \cdot 10$$

37 The radius of Sphere A is 2 inches, and the radius of Sphere B is 4 inches. How many times larger is the volume of Sphere B compared to the volume of Sphere A?

    A   2
    B   3
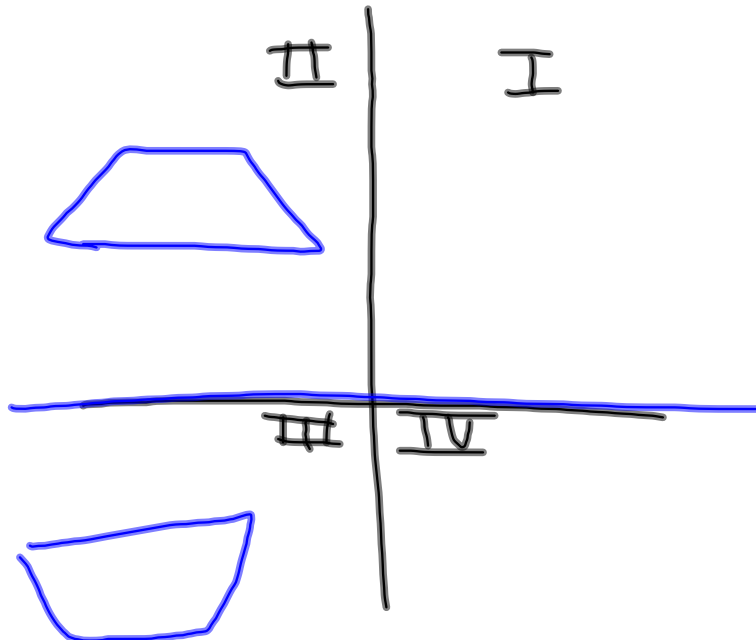   C   4
    D   8

$$(2r)^3$$
$$8r^3$$

38 A cylinder has a diameter of **10 inches** and a height **four times its radius.** What is its volume?

F 500π cu in.

G $2,000\pi$ cu in.

H $4,000\pi$ cu in.
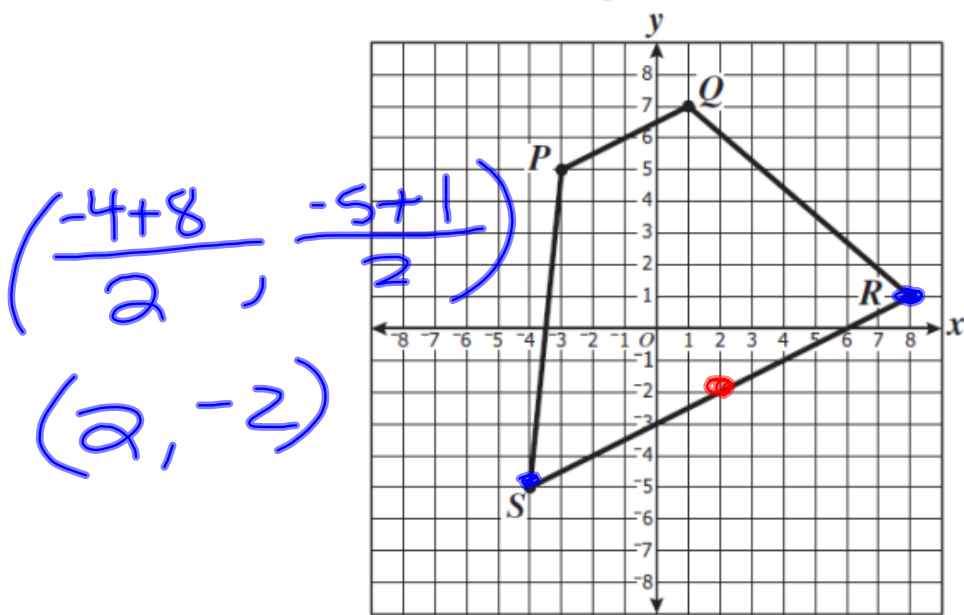
J $40,000\pi$ cu in.

$$V = \pi r^2 h$$
$$= \pi \cdot 5^2 \cdot 20$$
$$= 500\pi$$

40 A trapezoid is located entirely in quadrant II. If this trapezoid is reflected across the x-axis, in which quadrant will the new trapezoid be located?

F   I

G   II

H   III
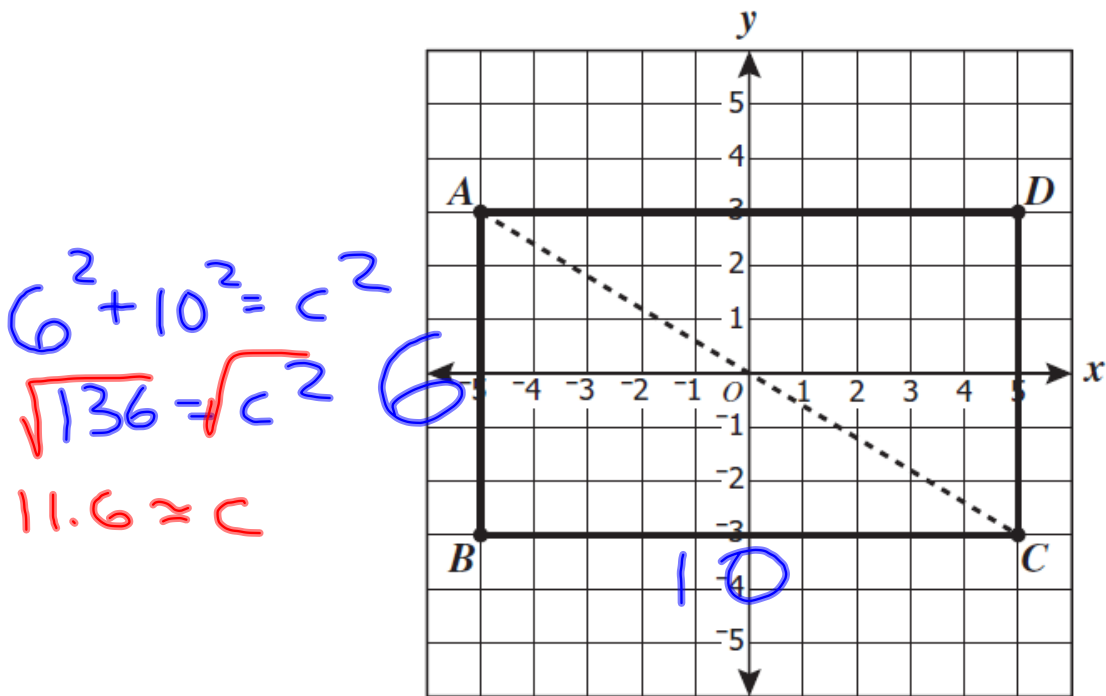
J   IV

39 $P(^-3, 5)$, $Q(1, 7)$, $R(8, 1)$, and $S(^-4, ^-5)$ are connected to form a trapezoid.

$$\left(\frac{-4+8}{2}, \frac{-5+1}{2}\right)$$

$$(2, -2)$$

What is the midpoint of $\overline{SR}$?

A $(0, ^-3)$

B $(4, ^-1)$

C $(3, ^-1.5)$

D $(2, ^-2)$

41 Rectangle $ABCD$ is placed on a grid as shown.

$6^2 + 10^2 = c^2$

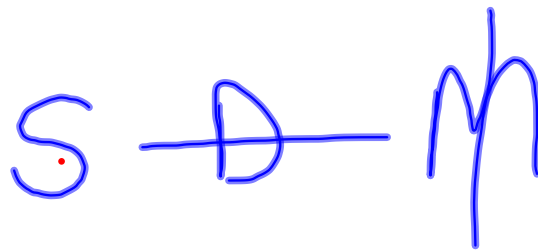$\sqrt{136} = \sqrt{c^2}$

$11.6 \approx c$

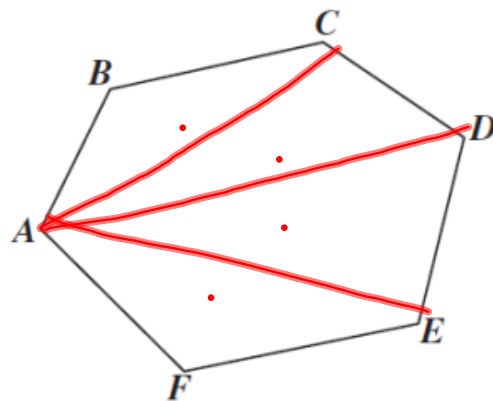Which is *closest* to the length of diagonal $\overline{AC}$?

42 Which of the following letters has both line symmetry and point symmetry?

S D M (H)

F S
G D
H M
(J H)

S →D— M

28
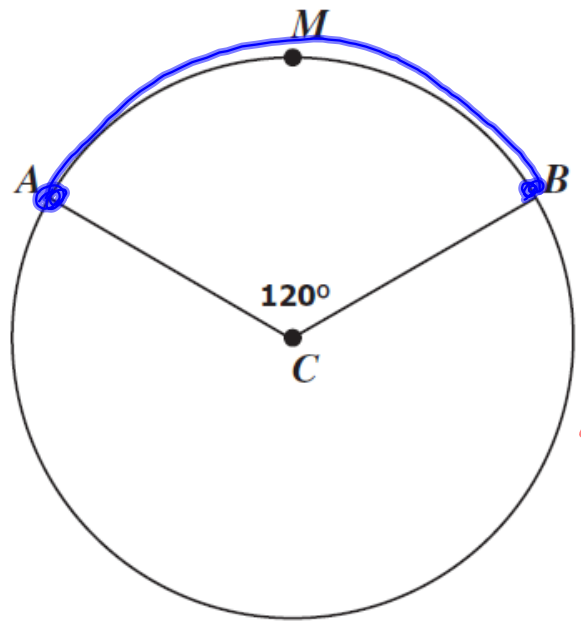

Given the polygon shown above, $m\angle A + m\angle F + m\angle E + m\angle D + m\angle C + m\angle B =$

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$(6-2)\cdot 180 = 720°$
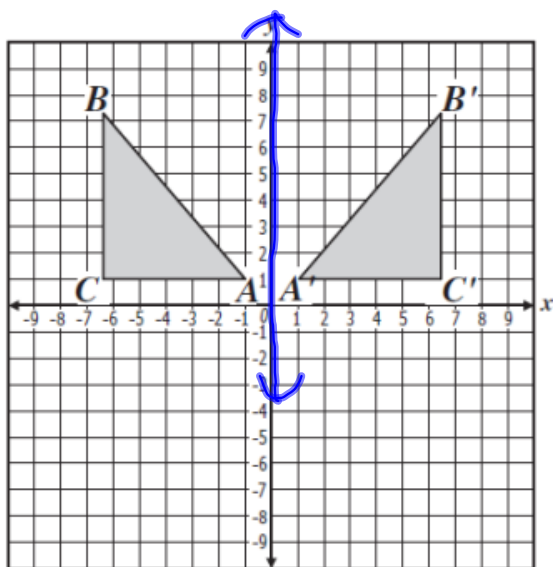
29 The circumference of circle C is 144π.

$$\frac{120}{360} \cdot 144\pi$$
$$48\pi$$

120°

C

144π

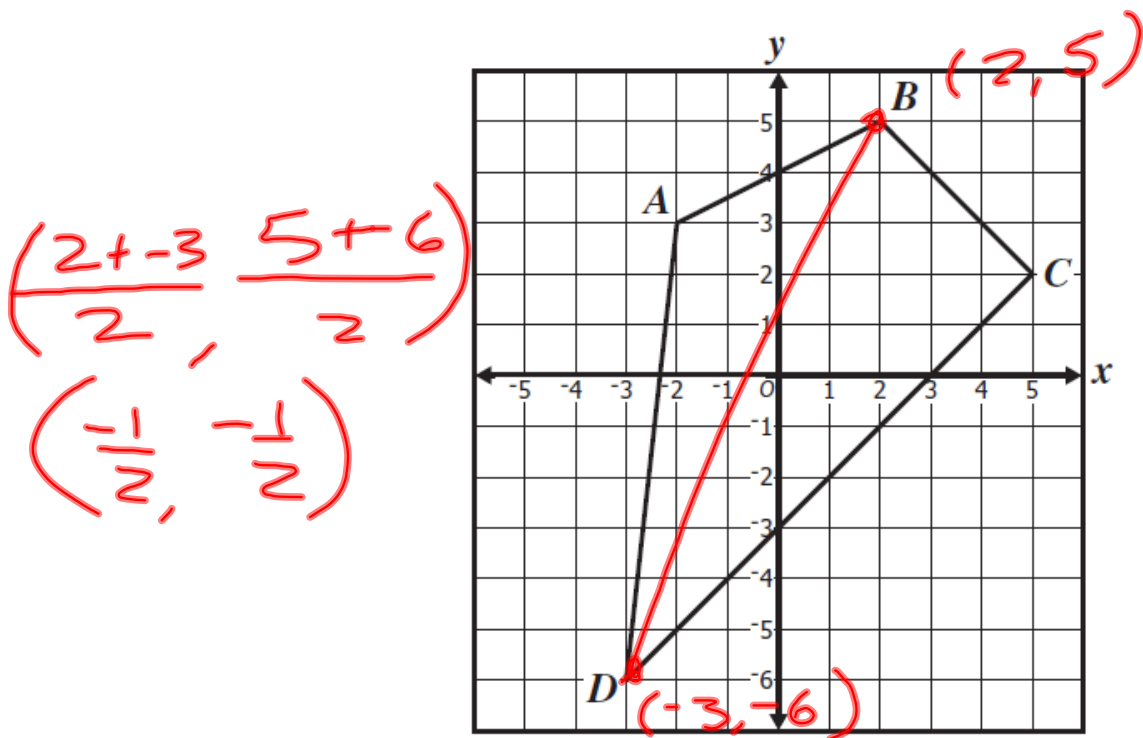What is the length of $\overset{\frown}{AMB}$?

A 8π
B 16π
C 48π
D 96π

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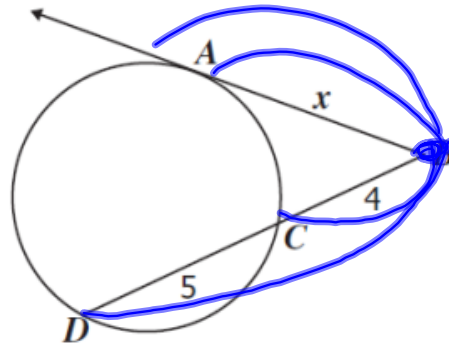

A   Tessellation

B   Reflection

C   Rotation

D   Translation

44 A quadrilateral is placed on a grid as shown.

$$\left(\frac{2+-3}{2}, \frac{5+6}{2}\right)$$

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

$(2,5)$

A

B

C

D $(-3,-6)$

The apparent midpoint of $\overline{BD}$ is —

26 In the diagram, $\overline{AB}$ is tangent to the circle at point A, and $\overline{BD}$ intersects the circle at points C and D.
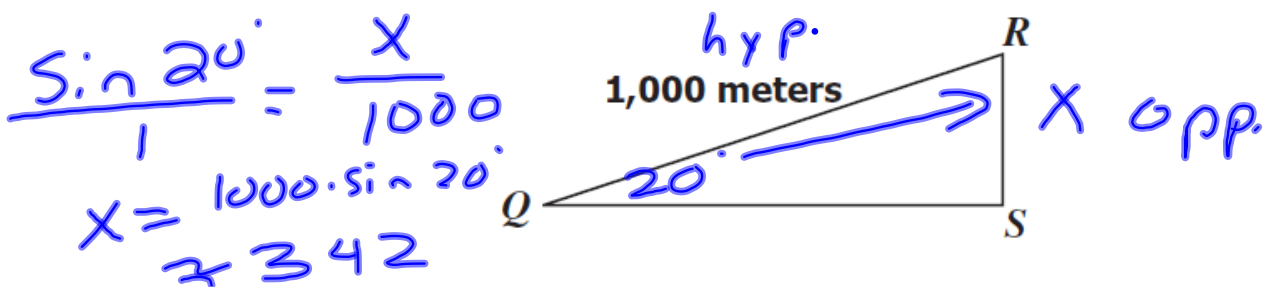

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C $(4, 5)$
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23 Given: $\triangle QRS$ where $m\angle Q = 20°$ and $m\angle S = 90°$

$$\frac{\sin 20°}{1} = \frac{x}{1000}$$

$$x = 1000 \cdot \sin 20°$$

$$x \approx 342$$

hyp.
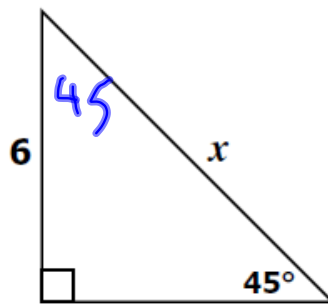
1,000 meters

X opp.

R

Q ∠20° S

What is the length, to the nearest meter, of $\overline{RS}$?

18 John wants to make a triangular garden. Which of the following are possible dimensions?

F 4 ft by 5 ft by 10 ft   9
G 6 ft by 6 ft by 12 ft   12
H 6 ft by 8 ft by 10 ft   14
J 8 ft by 12 ft by 20 ft

22

In the figure, what is the value of x?

If we forgot,   6

$6^2 + 6^2 = x^2$

F   6

G $6\sqrt{2}$

$\sqrt{72} = \sqrt{x^2}$

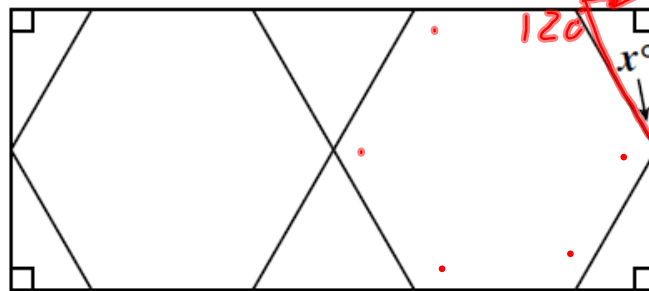H $6\sqrt{3}$

J   12

24

60°

A   C

160°

30°   B

In the circle, what is the measure of $\angle ABC$?

25 This figure shows a pattern of triangles and regular hexagons.

$(n-2).180°$

$=\dfrac{720°}{6}=120°$

120°

$x°$

60

What is the value of x ?

A 30

B 60

C 90

D 120

$ext \angle = \dfrac{360}{n}$