

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.

$$\begin{aligned} S.A. &= 2\pi r^2 + 2\pi r h \\ &= 2\pi \cdot 5^2 + 2\pi \cdot 5 \cdot 10 \\ &\approx 471 \end{aligned}$$

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

$$V = \frac{4}{3}\pi 2^3$$

8

$$V = \frac{4}{3}\pi \cdot 4^3$$

64

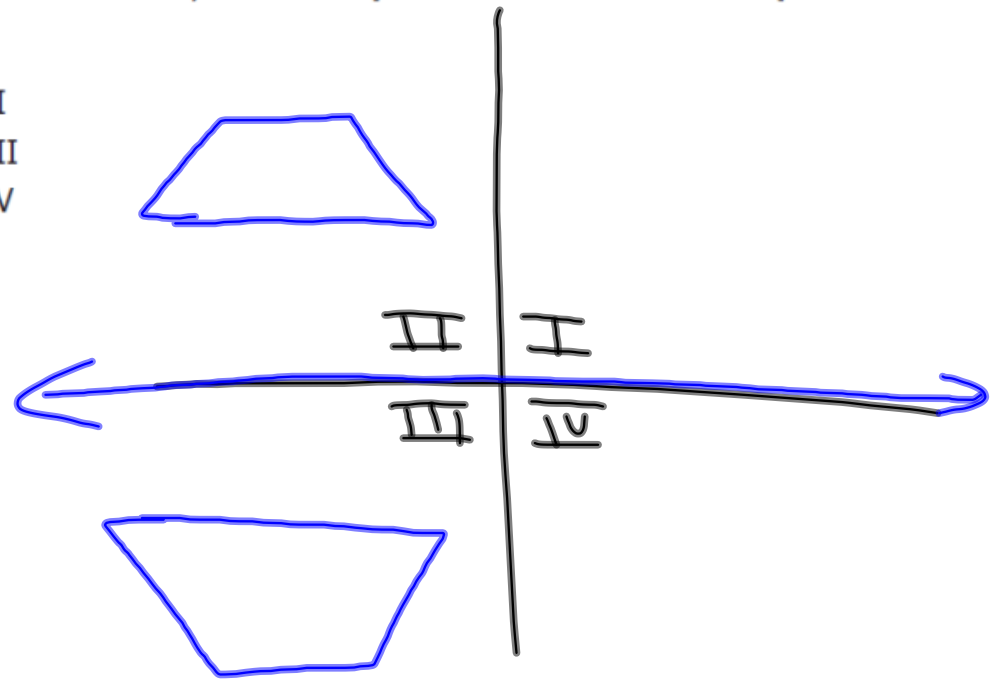
38 A cylinder has a diameter of 10 inches and a height four times its radius. What is its volume?

- F 500π cu in.
- G $2,000\pi$ cu in.
- H $4,000\pi$ cu in.
- J $40,000\pi$ cu in.

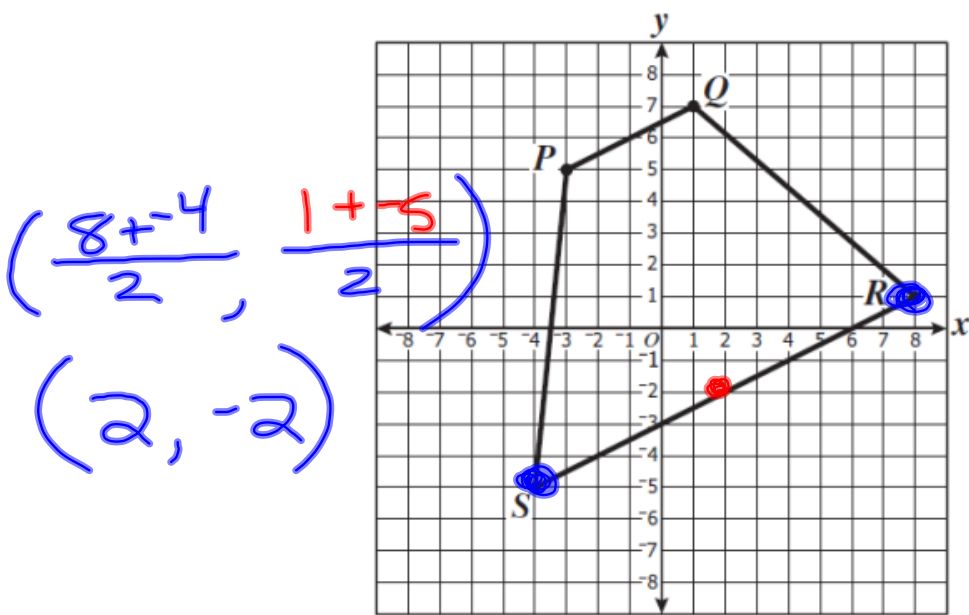
$$\begin{aligned} V &= \pi r^2 h \\ &= \pi \cdot 5^2 \cdot 20 \\ &= \pi \cdot 25 \cdot 20 \\ &= 500\pi \end{aligned}$$

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.

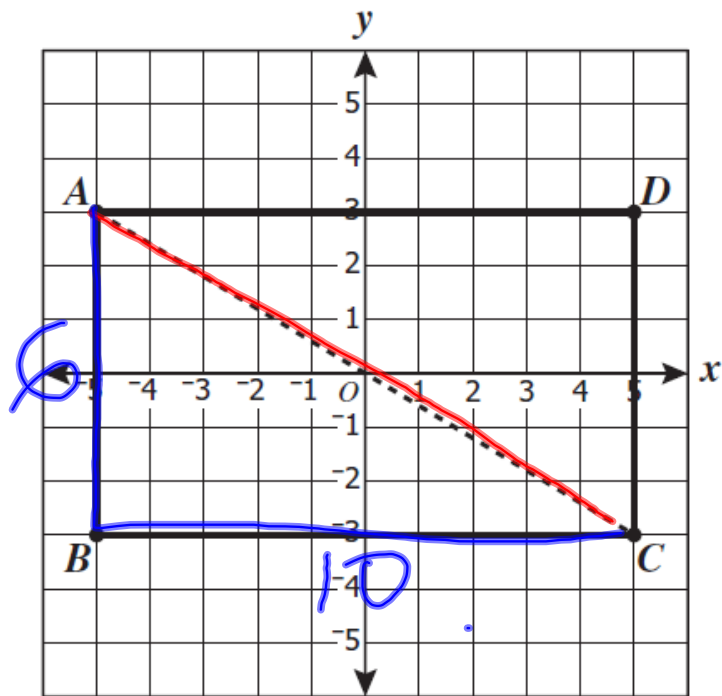


What is the midpoint of \overline{SR} ?

- ~~A (0, 3)~~
- B (4, -1)
- C (3, -1.5)
- D (2, -2)

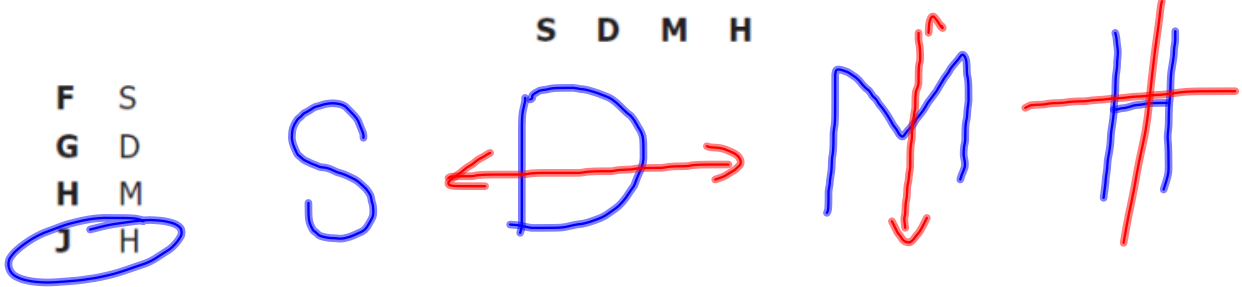
41 Rectangle $ABCD$ is placed on a grid as shown.

$$\begin{aligned}6^2 + 10^2 &= c^2 \\36 + 100 &= c^2 \\ \sqrt{136} &= \sqrt{c^2} \\ 11.6 &\approx c\end{aligned}$$

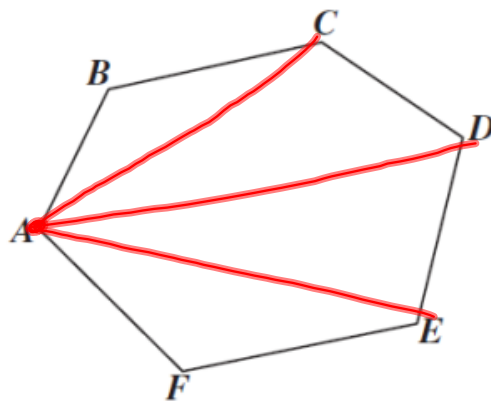


Which is *closest* to the length of diagonal \overline{AC} ?

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



28

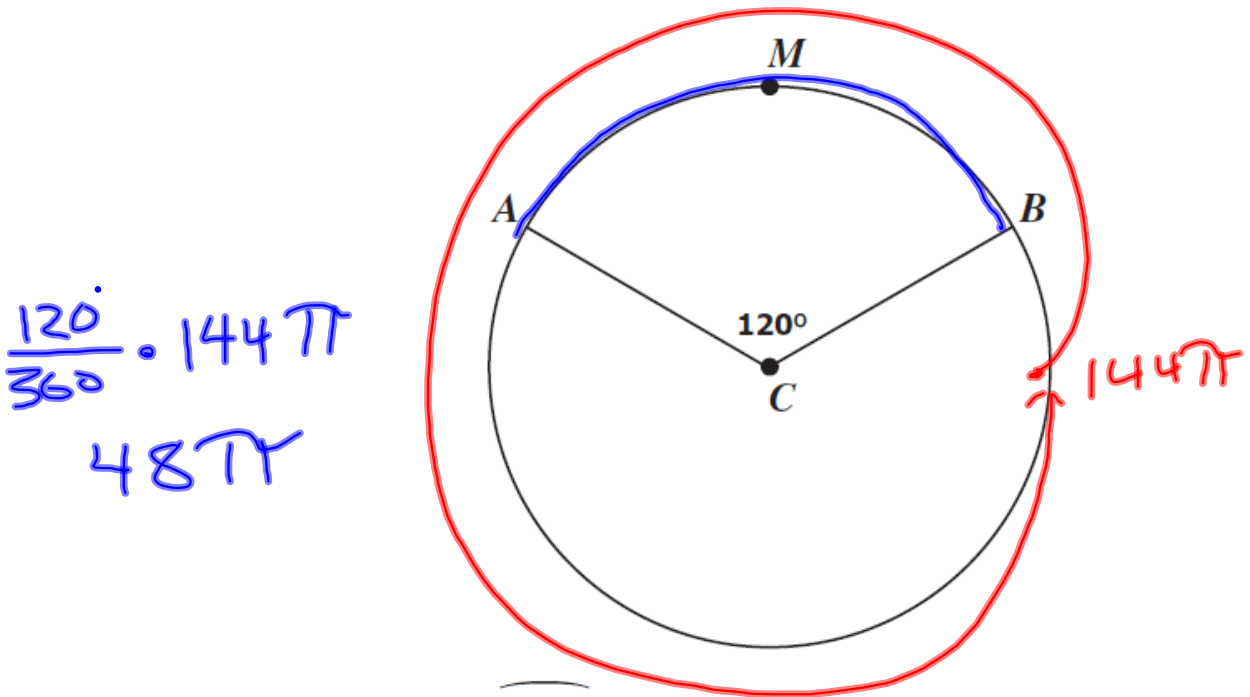


Given the polygon shown above, $m\angle A + m\angle F + m\angle E + m\angle D + m\angle C + m\angle B =$

$$(n-2) \cdot 180 =$$

$$(6-2) \cdot 180 = 720$$

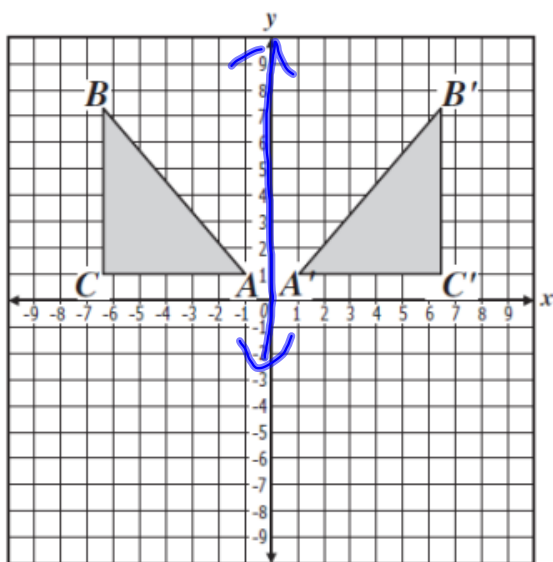
29 The circumference of circle C is 144π .



What is the length of \widehat{AMB} ?

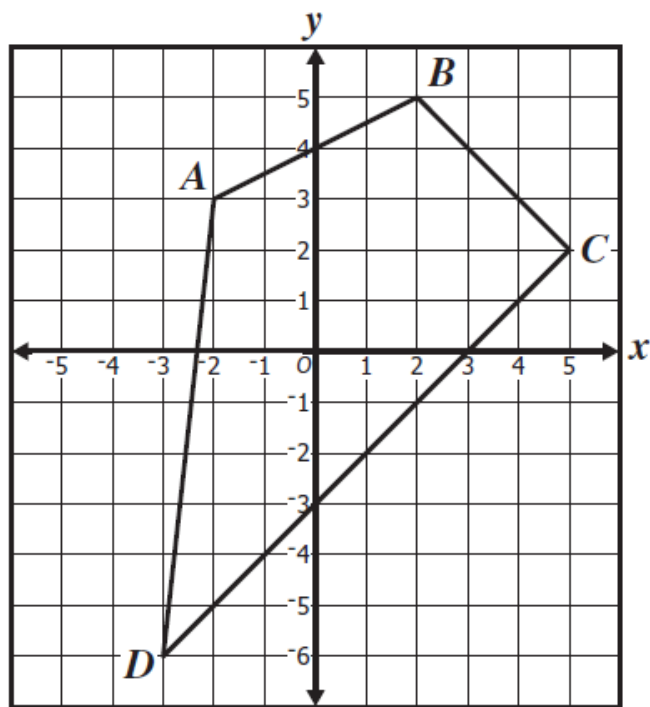
- A 8π
- B 16π
- C 48π**
- D 96π

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



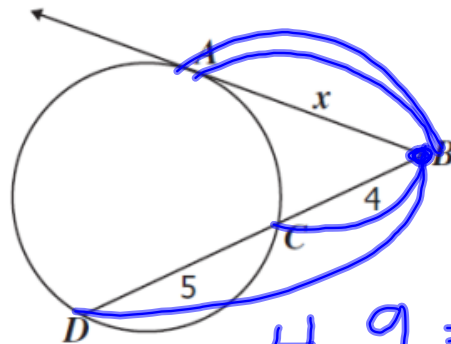
- ~~A~~ Tessellation
- B** Reflection
- ~~C~~ Rotation
- ~~D~~ Translation

44 A quadrilateral is placed on a grid as shown.



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 .



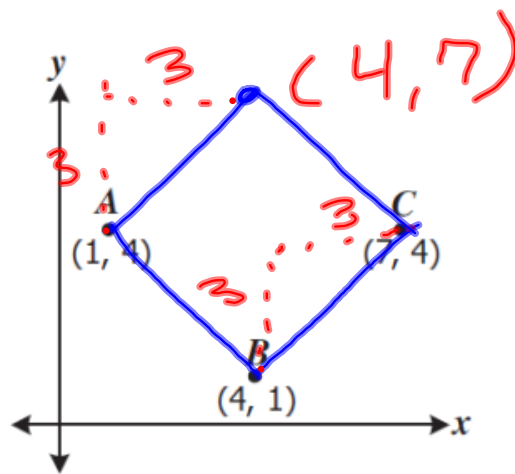
What is the value of x ?

$$4 \cdot 9 = x \cdot x$$

$$36 = x^2$$

$$x = 6$$

27



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

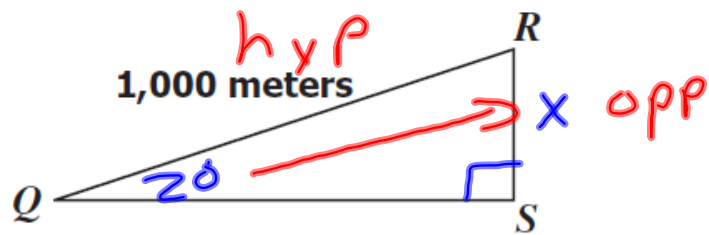
- A (7, 7)
- B (4, 7)
- C (4, 5)
- D (4, 4)

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

$$\frac{\sin 20^\circ}{1} = \frac{x}{1000}$$

$$x = 1000 \cdot \sin 20^\circ$$

$$\approx 342$$

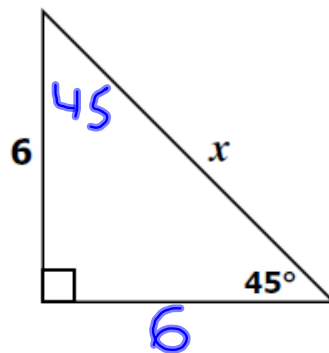


What is the length, to the nearest meter, of \overline{RS} ?

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
- 1
 0
 2
- 9
 12
 14

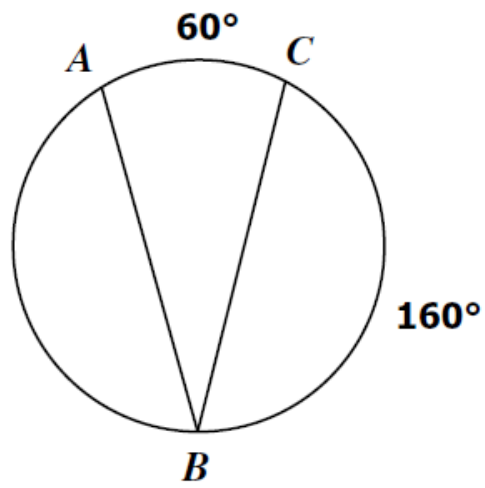
22



In the figure, what is the value of x ?

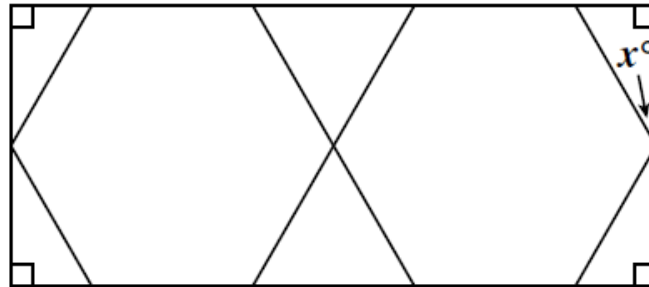
- ~~F 6~~
- G $6\sqrt{2}$**
- H $6\sqrt{3}$
- ~~J 12~~

24



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

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



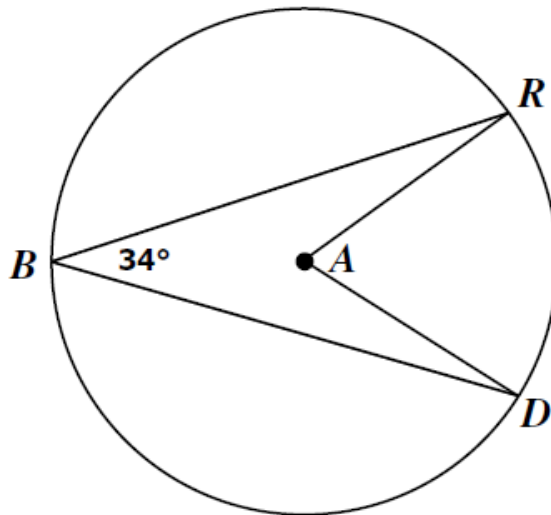
What is the value of x ?

- 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?

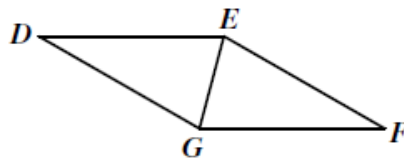
- F Square
- G Rectangle
- H Rhombus
- J Trapezoid

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



29 In rectangle $ABCD$, the slope of \overline{AB} is $\frac{1}{2}$. What is the slope of \overline{CD} ?

31 $DEFG$ is a rhombus with $m\angle EFG = 28^\circ$.



What is $m\angle GDE$?

33 A rectangular rug is 24 feet long and 10 feet wide. A rhombus design is formed inside the rug by joining the midpoints of each side of the rectangle. What is the length of each side of the rhombus?

34 A man who is 6 feet tall casts a shadow that is 4 feet long. At the same time, a nearby flagpole casts a shadow that is 18 feet long. How tall is the flagpole?

- 39 A cone has a slant height of 10 centimeters and a lateral area of 60π square centimeters. What is the volume of a sphere with a radius equal to that of the cone?
- A $102\pi \text{ cm}^3$
 - B $144\pi \text{ cm}^3$
 - C $288\pi \text{ cm}^3$
 - D $1,333\pi \text{ cm}^3$

- 40 Which line of reflection maps point K at $(-2, 2)$ to point K' at $(2, -2)$?
- F $y = 2$
 - G $y = x$
 - H x -axis
 - J y -axis

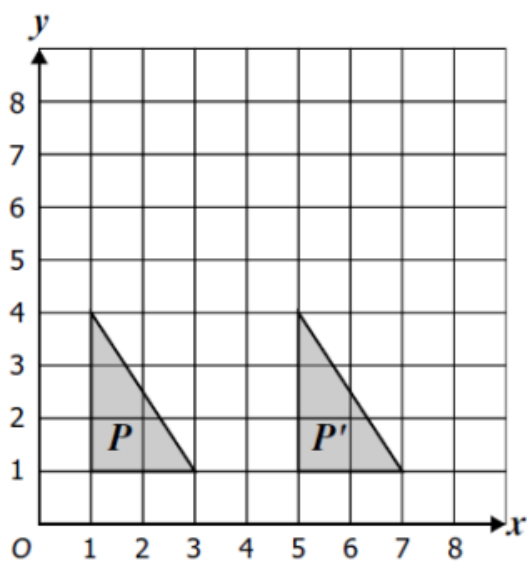
41 If the coordinates of A are $(1, 1)$ and the midpoint of \overline{AB} is $(-2, 0)$, then the coordinates of B are —

- A** $(-0.5, 0.5)$
- B** $(0.5, 0.5)$
- C** $(-1, 0)$
- D** $(-5, -1)$

45 A regular quadrilateral has what type of symmetry?

- A** Line symmetry only
- B** Point symmetry only
- C** Both point and line symmetry
- D** Neither point nor line symmetry

- 42 Which transformation could move the triangle P to triangle P' in a single step?



- F** Reflection over $x = 4$
- G** Rotation about $(2, 3)$
- H** Reflection over $y = 4$
- J** Translation

- 43 Figure *STARFIND* is symmetric with respect to the x -axis. The coordinates of point A are $(8, 6)$. What are the coordinates of point N ?

