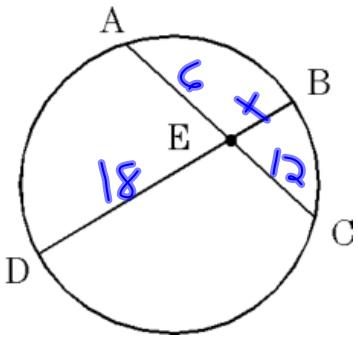




In the circle shown, chords AC and BD intersect at E . If $AE = 6$, $EC = 12$, and $DE = 18$. How long is \overline{BE} ?

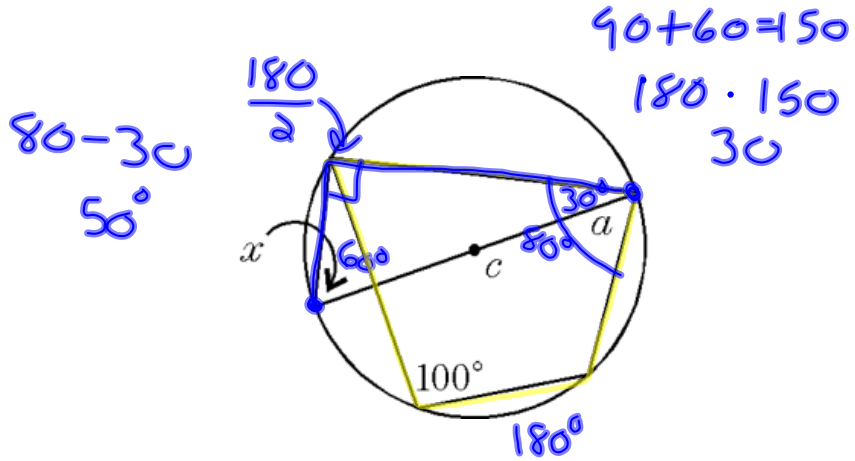
- A 4
- B 6
- C 8
- D 7.5

$$18 \cdot x = 6 \cdot 12$$
$$\frac{18x = 72}{18} \quad \frac{72}{18}$$
$$x = 4$$



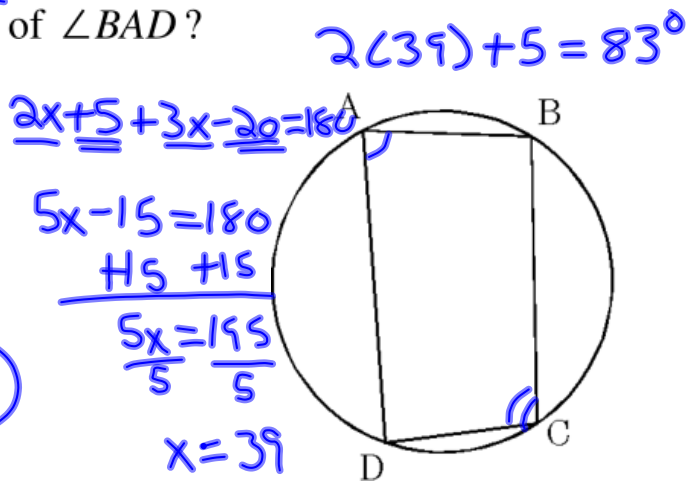
In the figure, angle x measures 60° . What is the measure of $\angle a$?

- A 40°
- B 45°
- C 50°**
- D 65°



If $m\angle A = (2x + 5)^\circ$ and $m\angle C = (3x - 20)^\circ$, then what is the measure of $\angle BAD$?

- A 33°
- B 39°
- C 75°
- D 83°**



In the diagram, PX is a tangent and OX is a radius. If the length of OX is 5 and $OP = 13$, how long is PY ?

A 12

B 18

C $\sqrt{145}$

D $\sqrt{194}$

$$a^2 + b^2 = c^2$$

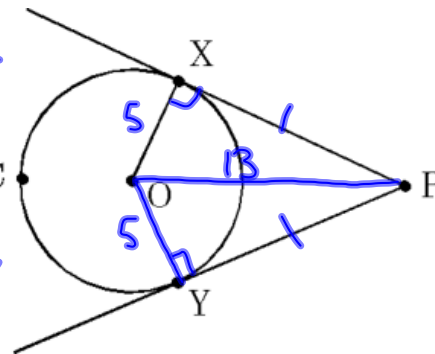
$$PY^2 + (5)^2 = (13)^2$$

$$PY^2 + 25 = 169$$

$$-25 \quad -25$$

$$PY^2 = 144$$

$$PY = 12$$



The area of a sector of the circle with an arc measure of 45° and with a radius of 4 is _____.

A 16π

B 8π

C 2π

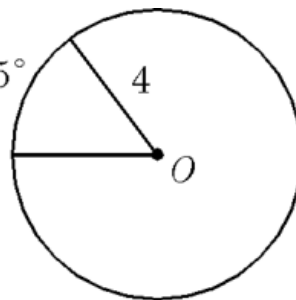
D 2

$$A = \frac{m}{360} \cdot \pi r^2$$

$$\frac{45}{360} \cdot \pi (4)^2$$

$$\downarrow$$

$$2\pi$$



Express $\frac{8\pi}{3}$ radians in degrees.

A 8°

B 68°

C 480°

D 1508°

$$\frac{8\pi}{3} \cdot \left(\frac{180}{\pi}\right) = \frac{1440\pi}{3\pi}$$



Convert to radians: 315°

A $\frac{7\pi}{4}$

B $\frac{5\pi}{4}$

C $\frac{7\pi}{8}$

D $\frac{5\pi}{3}$

$$315 \cdot \frac{\pi}{180} = \frac{315\pi}{180} = \frac{7\pi}{4}$$



What is the equation of a circle having radius 8 and center $(2, -7)$?

h, k

$$(x-h)^2 + (y-k)^2 = r^2$$

A $(x-2)^2 + (y+7)^2 = 8$

B $(x+7)^2 + (y+7)^2 = 64$

C $(x-2)^2 + (y+7)^2 = 64$

D $\frac{(x-2)^2}{8} - \frac{(y+7)^2}{8} = 1$

$$(x-(2))^2 + (y-(-7))^2 = 8^2$$

$$(x-2)^2 + (y+7)^2 = 64$$



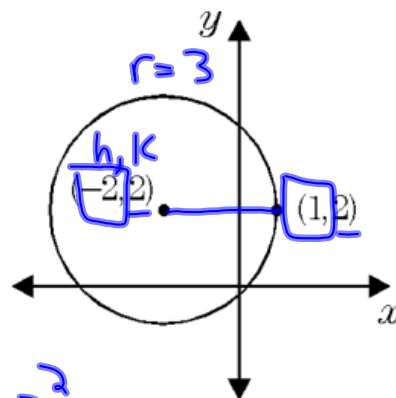
What is the equation of the circle shown below?

A $(x-2)^2 + (y+2)^2 = 9$

B $(x+2)^2 + (y-2)^2 = 9$

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

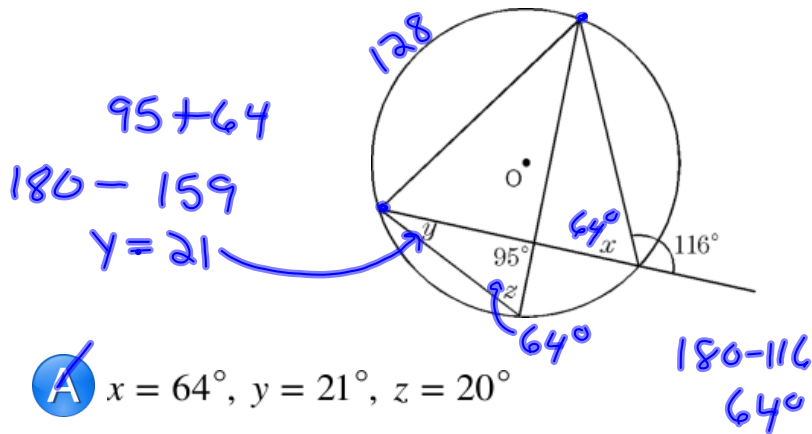
D $(x+2)^2 + (y-2)^2 = 1$



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



In the given diagram, find the values of x , y , and z .



- A $x = 64^\circ, y = 21^\circ, z = 20^\circ$
- B $x = 20^\circ, y = 21^\circ, z = 20^\circ$
- C $x = 64^\circ, y = 21^\circ, z = 64^\circ$
- D $x = 115^\circ, y = 115^\circ, z = 64^\circ$



What is the equation of a circle having radius 5 and center $(-3, 2)$?

$$(x - (-3))^2 + (y - (2))^2 = (5)^2$$

- A $(x + 3)^2 + (y - 2)^2 = 5$
- B $(x + 3)^2 + (y - 2)^2 = 25$
- C $(x - 3)^2 + (y + 2)^2 = 5$
- D $(x - 3)^2 + (y + 2)^2 = 25$



If $r = 34$ cm, what is the area of this sector? Express your answer to the nearest tenth of a centimeter.

A 813.5 cm^2

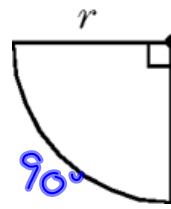
B 838.4 cm^2

C 907.9 cm^2

D 948.6 cm^2

$$A = \frac{n}{360} \cdot \pi r^2$$

$$A = \frac{90}{360} \cdot \pi (34)^2$$



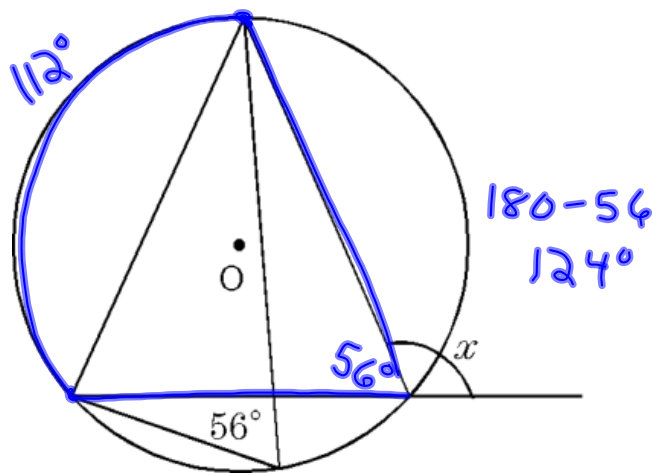
Find the value of x .

A 36°

B 108°

C 124°

D 136°



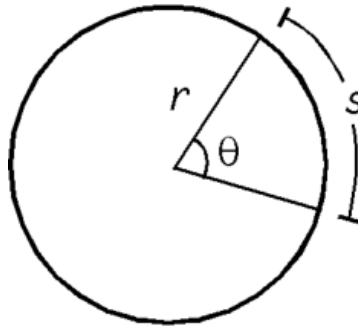
A particular baseball field is a quarter of a circle, like the sector of the circle shown in the figure below, where angle θ is 90° and the radius is 100 yards. What is the approximate size of the playing area of the baseball field? [Use $\pi \approx 3.14$.]

A 314 yd^2

B 7854 yd^2

C $12,452 \text{ yd}^2$

D $31,416 \text{ yd}^2$



$$\frac{m}{360} \cdot \pi r^2$$

$$\frac{90}{360} \cdot (3.14)(100)^2$$



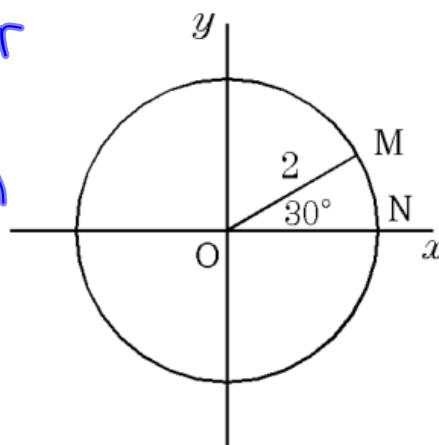
If $m\angle NOM = 30^\circ$, then what is the length (in terms of π) of the minor arc \widehat{NM} ?

A $\frac{\pi}{4}$ $\frac{m}{360} \cdot 2\pi r$

B $\frac{\pi}{3}$

C $\frac{2\pi}{3}$ $\frac{30}{360} \cdot 2\pi r$

D $\frac{3\pi}{2}$ $\frac{1\pi}{3}$



An arc of a circle has a length of 3π units. If the circle it comes from has a radius of 8 units, what is the measure of the central angle associated with this arc?

A 67.5°

B 72°

C 84.5°

D 135°

$$S = \frac{m}{360} \cdot 2\pi r$$

$$3\pi = \frac{m}{360} \cdot 2\pi(8)$$

$$\frac{3\pi}{16\pi} = \frac{m}{360} \cdot \frac{16\pi}{16\pi}$$

$$360 \left(\frac{3}{16} \right) = \left(\frac{m}{360} \right) 360$$



A stainless steel circle with a circumference of 80 cm is forged. A 38 cm arc of this circle is cut out. What is the measure of this arc in degrees?

A 38°

B 154°

C 171°

D 210°

$$S = \frac{m}{360} [2\pi r] - \text{Circumference}$$

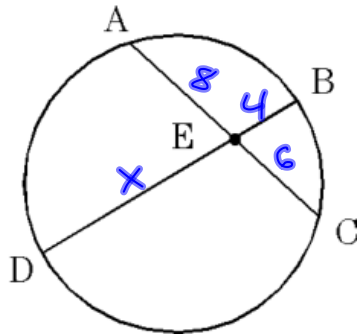
$$\frac{38}{80} = \frac{m}{360} \cdot \frac{80}{80}$$

$$360 \cdot \left(\frac{38}{80} \right) = \left(\frac{m}{360} \right) 360$$



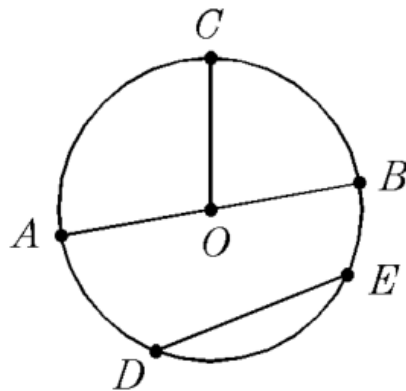
In the circle shown, chords AC and BD intersect at E . If $AE = 8$, $EC = 6$, and $BE = 4$. How long is \overline{DE} ?

- (A) 10 $4 \cdot x = 8 \cdot 6$
- (B) 12 $\frac{4x}{4} = \frac{48}{4}$
- (C) 14 $x = 12$
- (D) 16



What part of the circle is \overline{BA} ?

- (A) radius - CO
- (B) arc - \widehat{AC}
- (C) center - O
- (D) diameter

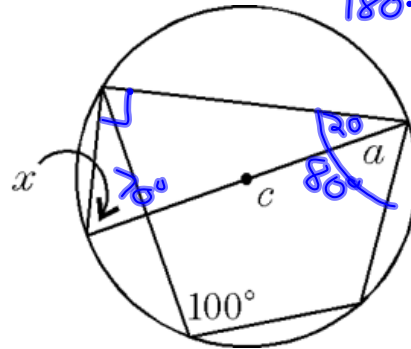


In the figure, angle x measures 70° . What is the measure of $\angle a$?

- A 60°
- B 75°
- C 80°
- D 85°

$80 - 20 = 60^\circ$

$90 + 70 = 160$
 $180 - 160 = 20$

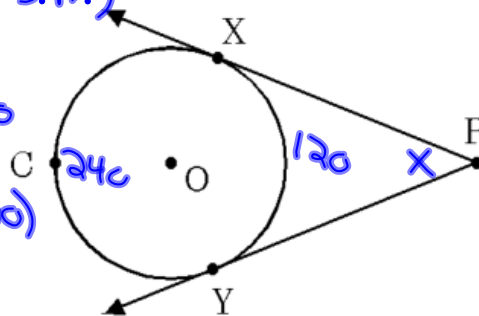


In the figure, PX and PY are drawn to the circle. If $m\widehat{XY} = 120^\circ$, then what is the measure of angle P ?

- A 40°
- B 60°
- C 100°
- D 120°

$\text{ang} = \frac{1}{2}(\text{B.A.} - \text{S.A.})$

$360 - 120 = 240$
 $X = \frac{1}{2}(240 - 120)$



Sarina orders a sixteen-inch diameter pizza. She divides it into equal slices by cutting every thirty degrees around the middle of the pizza. Approximately what is the area of each slice?

A 1.2 in^2

B 3.1 in^2

C 5.8 in^2

D 16.75 in^2

$$\frac{m}{360} \cdot \pi r^2$$

$$\frac{30}{360} \cdot \pi (8.)^2$$



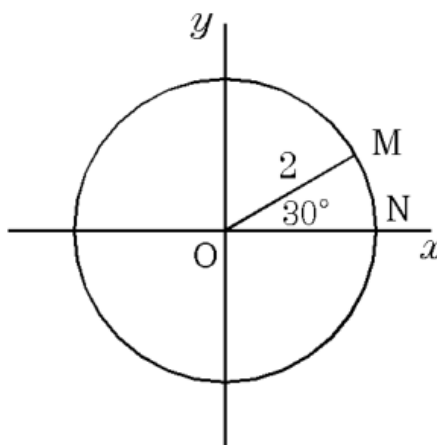
If $m\angle NOM = 30^\circ$, then what is the length of the minor arc \widehat{NM} ?

A $\frac{\pi}{4}$

B $\frac{\pi}{3}$

C $\frac{2\pi}{3}$

D $\frac{3\pi}{2}$



Express in degrees an angle of $\frac{2\pi}{15}$ radians.

- A 24°
- B 12°
- C 18°
- D 30°

$$\frac{2\pi}{15} \cdot \frac{180}{\pi}$$

$$\frac{360\pi}{15\pi}$$



Express 160° in radian measure.

- A $\frac{8\pi}{9}$
- B $\frac{7\pi}{9}$
- C $\frac{2\pi}{3}$
- D $\frac{5\pi}{9}$

$$160 \cdot \frac{\pi}{180} = \frac{160\pi}{180} = \frac{8\pi}{9}$$



