

Complete each problem. Show work for each answer.

1. Convert the degree measures into radians. Leave answers as exact values in most reduced form.

a) 140°

b) 300°

_____ radians

_____ radians

2. Convert the following radian measures into degrees.

a) $\frac{23\pi}{12}$

b) $\frac{7\pi}{2}$

3. Determine the arc length.

a) Central Angle of $\frac{10\pi}{9}$ rad,
radius of 18 cm.

b) Central Angle of 80° ,
radius of 6 cm.

$s =$ _____ (E)

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4. Determine the missing information.

a) $r = 5$ cm, $\theta = \frac{9\pi}{5}$ rad.

b) $\theta = \frac{4\pi}{5}$ rad., $s = \frac{3\pi}{5}$ cm

$s =$ _____ cm

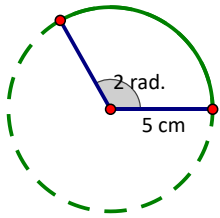
$r =$ _____ cm

5. Find the central angle (in rad) that intercepts an arc of length $\frac{\pi}{6}$ cm in a circle of radius 10 cm.

6. Find the central angle (in deg) that intercepts an arc of length 14 cm in a circle of radius 2cm.

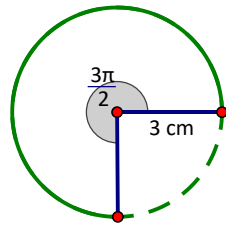
7. Determine the arc length of the following.

a)



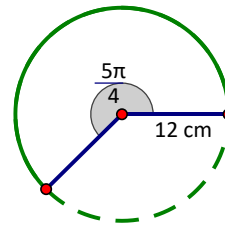
$s = \underline{\hspace{2cm}}$ (E)

b)



$s = \underline{\hspace{2cm}}$ (E)

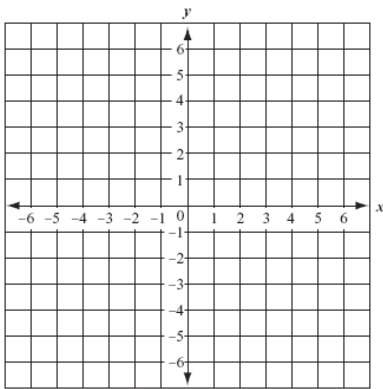
c)



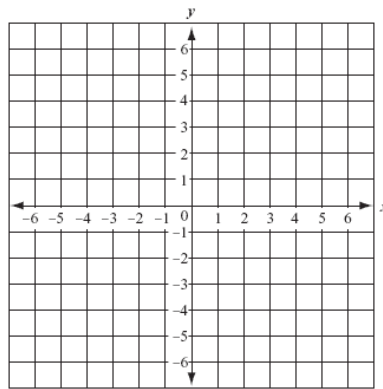
$s = \underline{\hspace{2cm}}$ (E)

8. Graph each circle.

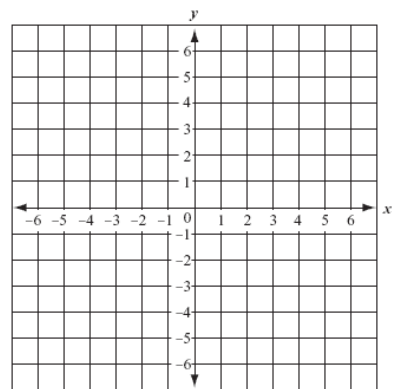
a) $(x - 4)^2 + (y + 2)^2 = 4$



b) $(x + 5)^2 + (y + 4)^2 = 49$



c) $(x - 3)^2 + y^2 = 36$



9. Write the equation of a circle with the given characteristics.

a) Diameter Endpoints: (1, 1) and (5, 5)

b) Center: (9, 7) Passes Through: (-6, -2)

c) Center: (6, -2) Tangent to $x = -4$

d) Center: (-3, -8) with an area of $121\pi \text{ cm}^2$