

The graph on the right (**NOT** drawn to scale) shows a unit circle and an angle θ in standard position.

SCORE: ____ / 4 PTS

The coordinates of the point P on the unit circle are $(-\frac{8}{17}, -\frac{15}{17})$.

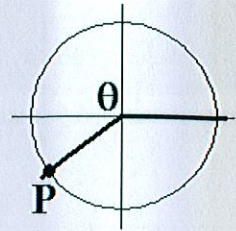
Fill in the blanks below.

[a] $\sin \theta = \underline{-\frac{15}{17}}$

[b] $\sec \theta = \underline{-\frac{17}{8}}$

[c] $\cot \theta = \underline{\frac{8}{15}}$

[d] $\cos(-\theta) = \underline{-\frac{8}{17}}$



In the diagram of a central angle on the right (**NOT** drawn to scale), the radius of the circle is 3 mm and the intercepted arc has length 4 mm. Fill in the blanks below.

$r = 3 \text{ mm}$

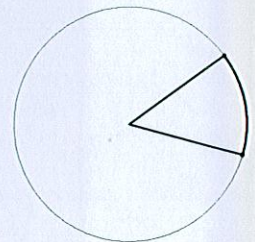
$s = 4 \text{ mm}$

SCORE: ____ / 5 PTS

[a] The measure of the central angle is $\underline{\frac{4}{3}}$ radians. $\frac{s}{r} = \frac{4 \text{ mm}}{3 \text{ mm}}$

[b] The area of the intercepted sector is $\underline{6 \text{ mm}^2}$. $\frac{1}{2} r^2 \theta = \frac{1}{2} (3 \text{ mm})^2 \frac{4}{3}$

[c] If an object is moving around the circle at a linear speed of 51 mm/s, its angular speed is $\underline{17}$ RAD/SEC.
 $w = rv \rightarrow v = \frac{w}{r} = \frac{51 \text{ mm/s}}{3 \text{ mm}}$ $\underline{17}$
 (specify the units)



Fill in the blanks below. Simplify all answers (including rationalizing denominators). Write "UNDEFINED" if the expression has no value.

SCORE: ____ / 3 PTS

[a] The complement of $\frac{2\pi}{9}$ radians is $\underline{\frac{5\pi}{18}}$

[b] 72 degrees = $\underline{\frac{2\pi}{5}}$ radians

[c] $\frac{7\pi}{12}$ radians = $\underline{105}$ degrees

Use the unit circle above to fill in the blanks below. Simplify all answers (including rationalizing denominators). SCORE: _____ / 4 PTS
Write "UNDEFINED" if the expression has no value.

[a] $\cot \frac{3\pi}{4} = \underline{-1}$

[b] $\csc \frac{5\pi}{3} = \underline{\frac{-2\sqrt{3}}{3}}$

[c] $\sec \frac{3\pi}{2} = \underline{\text{UNDEFINED}}$

[d] $\tan \frac{7\pi}{6} = \underline{\frac{\sqrt{3}}{3}}$

Fill in the blanks below. Simplify all answers (including rationalizing denominators). SCORE: _____ / 2 PTS

[a] The smallest positive angle coterminal with $-\frac{49\pi}{6}$ is $\underline{\frac{11\pi}{6}}$

[b] $\cos\left(-\frac{49\pi}{6}\right) = \underline{\frac{\sqrt{3}}{2}}$