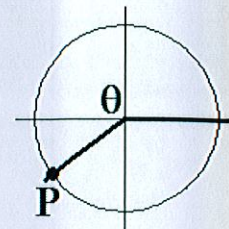


The graph on the right (**NOT** drawn to scale) shows a unit circle and an angle θ in standard position.

SCORE: _____ / 4 PTS

The coordinates of the point P on the unit circle are $(-\frac{12}{13}, -\frac{5}{13})$.

Fill in the blanks below.



[a] $\sin \theta = \underline{-\frac{5}{13}}$

[b] $\sec \theta = \underline{-\frac{13}{12}}$

[c] $\cot \theta = \underline{\frac{12}{5}}$

[d] $\cos(-\theta) = \underline{-\frac{12}{13}}$

In the diagram of a central angle on the right (**NOT** drawn to scale), the radius of the circle is 4 mm and the intercepted arc has length 5 mm.

SCORE: _____ / 5 PTS

Fill in the blanks below.

$r = 4 \text{ mm}$
 $s = 5 \text{ mm}$

[a] The measure of the central angle is $\underline{\frac{5}{4}}$ radians. $\frac{s}{r} = \frac{5 \text{ mm}}{4 \text{ mm}}$

[b] The area of the intercepted sector is $\underline{10 \text{ mm}^2}$. $\frac{1}{2} r^2 \theta = \frac{1}{2} (4 \text{ mm})^2 \frac{5}{4}$

[c] If an object is moving around the circle at a linear speed of 56 mm/s, its angular speed is $\underline{14}$ RAD/SEC.

(specify the units)

$v = r\omega \rightarrow \omega = \frac{v}{r} = \frac{56 \text{ mm/s}}{4 \text{ mm}}$

Fill in the blanks below. Simplify all answers (including rationalizing denominators).

SCORE: _____ / 3 PTS

Write "UNDEFINED" if the expression has no value.

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

[b] 75 degrees = $\underline{\frac{5\pi}{12}}$ radians

[c] $\frac{4\pi}{15}$ radians = $\underline{48}$ 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.

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

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

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

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

Fill in the blanks below. Simplify all answers (including rationalizing denominators).

SCORE: _____ / 2 PTS

$$[a] \text{ The smallest positive angle coterminal with } -\frac{37\pi}{6} \text{ is } \underline{\frac{11\pi}{6}}$$

$$[b] \cos\left(-\frac{37\pi}{6}\right) = \underline{\frac{\sqrt{3}}{2}}$$