Name:


Multiple Choice: Identify the choice that best completes the statement or answers the question.
a

1. What is the measure of the reference angle for an angle of $-546^{\circ}$ in standard position?
(A. $6^{\circ}$
C. $-186^{\circ}$
B. $-6^{\circ}$
D. $84^{\circ}$
2. Which of these angles is NOT conterminal with an angle of $190^{\circ}$ in standard position?
A. $-530^{\circ}$
B. $-170^{\circ}$
C. $550^{\circ}$
D. $370^{\circ}$
a 3. Given $\tan \theta=\frac{6}{11}$, which statement is true for all possible values of $\theta$ ?
A. $\cot \theta=\frac{11}{6}$
B. $\cot \theta=-\frac{11}{6}$
C. $\cot \theta=-\frac{6}{11}$
D. $\cot \theta$ cannot be determined
$b$
3. What is the length of the arc that subtends a central angle of $-210^{\circ}$ in the unit circle?
A. 6
C. $-{ }_{6} \pi$ units
(B. ${ }_{6}^{7} \pi$ units
D. ${ }^{7} 72$ units
4. What is $-490^{\circ}$ in radians?
A. $-490 \pi$ radians
C. $-{ }_{18}^{49} \pi$ radians
B. $-{ }_{-18}^{49}$ radians
D. $\frac{-88200}{\pi}$ radians
5. What is the value of $\csc \left(-\frac{6 \pi}{5}\right)$ to the nearest hundredth?

$$
\csc \left(-\frac{6 \pi}{5}\right)=\frac{1}{\sin \left(-\frac{6 \pi}{5}\right)}
$$

A. 0.59
B. -15.21
C. 1.70
D. -1.07
7. Identify the point on the unit circle corresponding to an angle of $300^{\circ}$ in standard position.
A. $\left(-\sqrt{3},-\frac{\sqrt{3}}{2}\right)$
B. $\left(-\frac{\sqrt{3}}{2}, \frac{1}{2}\right)$
C. $\left(\frac{1}{2},-\frac{\sqrt{3}}{2}\right)$
D. $\left(\frac{1}{2},-\sqrt{3}\right)$
8. Which point on the unit circle corresponds to $\tan \theta=\sqrt{3}$ ?
A. $\left(-\frac{1}{2}, \sqrt{3}\right)$
C. $\left(\sqrt{3},-\frac{\sqrt{3}}{2}\right)$
B. $\left(-\frac{\sqrt{3}}{2},-\frac{1}{2}\right)$
(D.) $\left(-\frac{1}{2},-\frac{\sqrt{3}}{2}\right)$
9. Find the length of the arc that subtends a sector angle $225^{\circ}$ in a circle with radius 3.7 cm .
$\theta=225^{\circ}$
$r=3.7 \mathrm{~cm}$

$$
\begin{aligned}
a & =\theta \cdot r \\
& =\left(225^{\circ} \times \frac{\pi}{180}\right) \cdot 3.7=14.53 \mathrm{~cm}
\end{aligned}
$$

10. $\mathrm{P}(-4,-3)$ is a terminal point of angle $\theta$ in standard position. Determine all possible measures of $\theta$ in the domain $-780^{\circ} \leq \theta \leq-60^{\circ}$. Give the answers to the nearest degree.

11. If $\theta$ is on a terminal arm, find the measure (s) of angle $\theta$ if $\sin \theta=-\frac{1}{\sqrt{5}}$.

$$
\begin{aligned}
& \text { Find } \theta_{R} \ldots \quad \theta_{R}=\sin ^{-1}\left(\frac{1}{\sqrt{5}}\right)=26.56^{\circ} \\
& \simeq 27^{\circ} \\
& \left.\begin{array}{rl}
\therefore \theta_{1} & =180+27=207^{\circ} \\
\theta_{2} & =360-27=333^{\circ}
\end{array}\right\} \quad 2 \text { angles }
\end{aligned}
$$

Bonus: A unicycle wheel has diameter 20 in. Suppose a positive angle of rotation corresponds to the wheel moving forward. Determine the distance and the direction the wheel will roll when it turns through an angle of $-350^{\circ}$. Express the exact distance, in inches, in terms of $\pi$.
$d=20$
$r=\frac{20}{2}=10 \mathrm{in}$

$$
\begin{aligned}
a & =\theta \cdot r \\
& =\left(350^{\circ} \times \frac{\pi}{180}\right) \cdot 10
\end{aligned}=\frac{19.44 \pi}{}=61.08 \mathrm{in}
$$

backward

