Unit 9 Quiz Review

Convert each radian to a degrees and degree measure to radians. **Show all your work.**

1. $\frac{5\pi}{9} \cdot \frac{180}{\pi} = \boxed{100°}$

2. $185° \cdot \frac{\pi}{180} = \boxed{\dfrac{37\pi}{36}}$

Find a coterminal angle between **0° and 360°.**

3. $810°$
$\begin{array}{r} -360 \\ \hline 450 \\ -360 \\ \hline 90° \end{array}$ $\boxed{90°}$

4. $-200°$
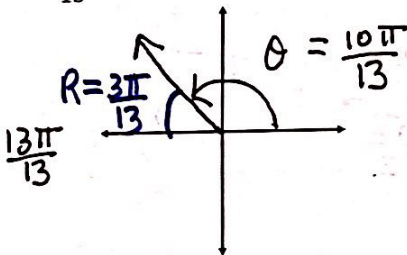$\begin{array}{r} +360 \\ \hline 160° \end{array}$ $\boxed{160°}$

Find a coterminal angle **between 0 and 2π.**

5. $\frac{-4\pi}{7} + \frac{14\pi}{7} = \boxed{\dfrac{10\pi}{7}}$

6. $\frac{23\pi}{10} - \frac{20\pi}{10} = \boxed{\dfrac{3\pi}{10}}$

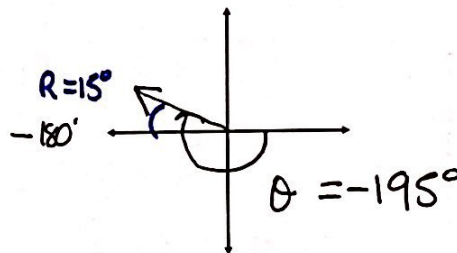**Draw and label the given angle and find the reference angle.**

7. $\frac{10\pi}{13}$

$\theta = \frac{10\pi}{13}$

$R = \frac{3\pi}{13}$

$\frac{13\pi}{13}$

$R = \frac{13\pi}{13} - \frac{10\pi}{13}$

$\theta = \dfrac{\frac{10\pi}{13}}{\frac{3\pi}{13}}$

$R = \dfrac{3\pi}{13}$

8. $-195°$ ← clockwise

$R = 15°$

$-180°$

$\theta = -195°$

$R = 195 - 180 = 15°$

$\theta = -195°$

$R = 15°$

Determine the Quadrant of each angle.

9. $\frac{8\pi}{7}$

$\boxed{III}$ $\frac{7\pi}{7}$
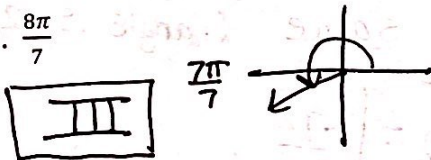
10. $290°$

$270°$
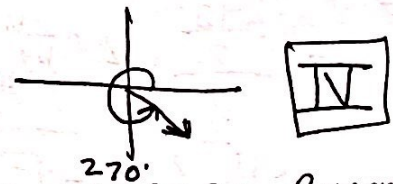
$\boxed{IV}$

Find the **angles** of the given trigonometric functions between $0 \geq \theta > 360°$ and $0 \geq \theta > 2\pi$.   Remember $(\cos\theta, \sin\theta)$

11. $\sin\theta = \frac{\sqrt{2}}{2}$
Degrees $45°$ and $135°$
Radians $\frac{\pi}{4}$ and $\frac{3\pi}{4}$

12. $\cos\theta = -\frac{\sqrt{3}}{2}$
Deg. $150°$ and $210°$
Rad. $\frac{5\pi}{6}$ and $\frac{7\pi}{6}$

13. $\sin\theta = 0$
Deg. $0°$ and $180°$
Rad. 0 and π

14. $\cos\theta = -1$
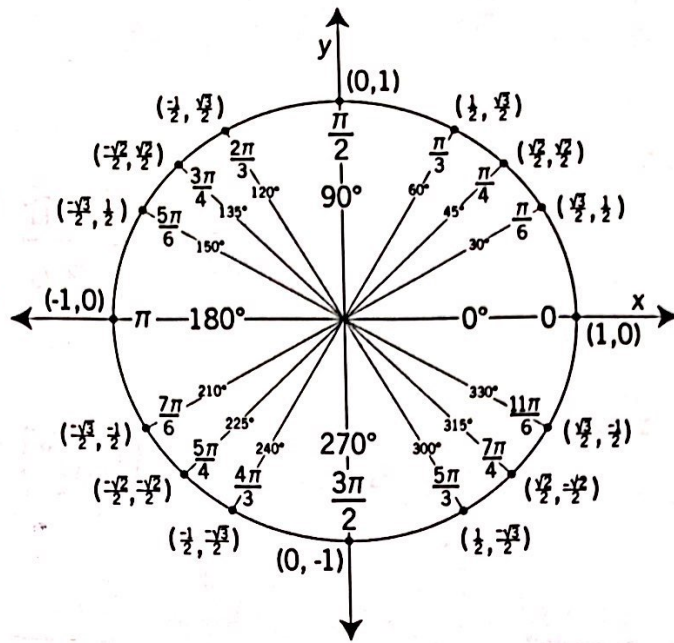Deg. $180°$
Rad. π

15. Find the Quadrant where $\sin < 0$ and $\cos > 0$.
Neg.   Pos.
$\boxed{IV}$
$\begin{array}{c|c} S & A \\ \hline T & C \end{array}$

16. Find the Quadrant where $\sin < 0$ and $\cos < 0$.
neg.   neg
$\boxed{III}$
$\begin{array}{c|c} S & A \\ \hline T & C \end{array}$

Remember:

(x, y)

$(\cos\theta, \sin\theta)$

$\tan\theta = \dfrac{\sin\theta}{\cos\theta}$

$\cot\theta = \dfrac{\cos\theta}{\sin\theta}$

$\sec\theta = \dfrac{1}{x}$ or $\dfrac{1}{\cos\theta}$

$\csc\theta = \dfrac{1}{y}$ or $\dfrac{1}{\sin\theta}$

Use the unit circle to find the **exact** values of each trigonometric function.

17. $\cos\dfrac{\pi}{4} = \boxed{\dfrac{\sqrt{2}}{2}}$

18. $\sin\dfrac{7\pi}{4} = \boxed{\dfrac{-\sqrt{2}}{2}}$

19. $\cos(300°) = \boxed{\dfrac{1}{2}}$

20. $\tan(225°) = \dfrac{-\frac{\sqrt{2}}{2}}{-\frac{\sqrt{2}}{2}} = \boxed{1}$

$\dfrac{y}{x}$

21. $\csc 210° = \boxed{-2}$

$\dfrac{1}{\sin}$

or $\dfrac{1}{y}$

22. $\sec\dfrac{5\pi}{6} = -\dfrac{2}{\sqrt{3}} \cdot \dfrac{\sqrt{3}}{\sqrt{3}} = \boxed{\dfrac{-2\sqrt{3}}{3}}$

$\dfrac{1}{\cos}$

or $\dfrac{1}{x}$

23. $\tan\dfrac{5\pi}{3} = \dfrac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} \div$ ← mult. by reciprocal

$\dfrac{y}{x}$

or $\dfrac{\sin}{\cos}$

$\dfrac{-\sqrt{3}}{2} \cdot \dfrac{2}{1} = \boxed{-\sqrt{3}}$

24. $\cos(-135°)$ — coterminal angle is 225°

$-135 + 360 = 225$

$\cos(225) = \boxed{\dfrac{-\sqrt{2}}{2}}$

25. $\cot(0°)$

$\dfrac{x}{y}$

or $\dfrac{\cos}{\sin}$

$\dfrac{1}{0} = \boxed{\text{undefined}}$

26. $\tan\pi$

$\dfrac{y}{x}$

or $\dfrac{\sin}{\cos}$

$\dfrac{0}{-1} = \boxed{0}$

27. $\csc\dfrac{3\pi}{2} = \dfrac{1}{-1} = \boxed{-1}$

$\dfrac{1}{y}$

or $\dfrac{1}{\sin}$

28. $\sec(90°)$

$\dfrac{1}{x}$

or $\dfrac{1}{\cos}$

$\dfrac{1}{0}$ or $\boxed{\text{undefined}}$

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