

Name _____
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Date _____
Algebra II

Advanced Trig Ratios Regents Practice

1. If $\cos \theta = -\frac{3}{4}$ and θ is in Quadrant III, then $\sin \theta$ is equivalent to

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|--------------------------|-------------------|
| 1) $-\frac{\sqrt{7}}{4}$ | 3) $-\frac{5}{4}$ |
| 2) $\frac{\sqrt{7}}{4}$ | 4) $\frac{5}{4}$ |

2. If the terminal side of angle θ , in standard position, passes through point $(-4, 3)$, what is the numerical value of $\sin \theta$?

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|------------------|-------------------|
| 1) $\frac{3}{5}$ | 3) $-\frac{3}{5}$ |
| 2) $\frac{4}{5}$ | 4) $-\frac{4}{5}$ |

3. A circle centered at the origin has a radius of 10 units. The terminal side of an angle, θ , intercepts the circle in Quadrant II at point C . The y -coordinate of point C is 8. What is the value of $\cos \theta$?

- | | |
|-------------------|------------------|
| 1) $-\frac{3}{5}$ | 3) $\frac{3}{5}$ |
| 2) $-\frac{3}{4}$ | 4) $\frac{4}{5}$ |

4. Given $\cos \theta = \frac{7}{25}$, where θ is an angle in standard position terminating in quadrant IV, and $\sin^2 \theta + \cos^2 \theta = 1$, what is the value of $\tan \theta$?

- | | |
|---------------------|--------------------|
| 1) $-\frac{24}{25}$ | 3) $\frac{24}{25}$ |
| 2) $-\frac{24}{7}$ | 4) $\frac{24}{7}$ |

5. Given that $\sin^2 \theta + \cos^2 \theta = 1$ and $\sin \theta = -\frac{\sqrt{2}}{5}$, what is a possible value of $\cos \theta$?

- | | |
|-----------------------------|--------------------------|
| 1) $\frac{5 + \sqrt{2}}{5}$ | 3) $\frac{3\sqrt{3}}{5}$ |
| 2) $\frac{\sqrt{23}}{5}$ | 4) $\frac{\sqrt{35}}{5}$ |

6. Given $\cos A = \frac{3}{\sqrt{10}}$ and $\cot A = -3$, determine the value of $\sin A$ in radical form.

7. An angle, θ , is in standard position and its terminal side passes through the point $(2, -1)$. Find the *exact* value of $\sin \theta$.

8. A circle centered at the origin has a radius of 4 units. The terminal side of an angle, θ , intercepts the circle in Quadrant III at point P . The x -coordinate of point P is 2. What is the value of $\cos \theta$?

9. The terminal side of θ , an angle in standard position, intersects the unit circle at $P\left(-\frac{1}{3}, -\frac{\sqrt{8}}{3}\right)$.

What is the value of $\sec \theta$?

1) -3

3) $-\frac{1}{3}$

2) $-\frac{3\sqrt{8}}{8}$

4) $-\frac{\sqrt{8}}{3}$

10. Point $M\left(t, \frac{4}{7}\right)$ is located in the second quadrant on the unit circle. Determine the exact value of t .