

Directions: Work in groups of 2-3 people. You may need extra paper.

1 For θ in quadrant III if $\sin \theta = -0.76$:

(a) Find $\cos \theta$ by using only trig identities.

(b) Find $\cos \theta$ by using a right triangle containing the reference angle.

(Hint: first draw a right triangle with an angle θ' that satisfies $\sin \theta' = 0.76$)

2 For α in quadrant IV if $\sec \alpha = 2.17$:

(a) Find $\cot \alpha$ by using only trig identities.

(b) Find $\cot \alpha$ by using a right triangle containing the reference angle.

(Hint: first draw a right triangle with an angle α' that satisfies $\sec \alpha' = 2.17$)

3 For β in quadrant III the sign of $\sec \beta$ is positive / negative / zero (circle one)

4 If $\sec \theta = 0.13$ then what are the possible values of $\sin \theta$? Please explain.

5 Find all angles (both positive and negative) for which the equation is true.

(a) $\sin \theta = -\frac{1}{2}$

(b) $\tan \beta = -\sqrt{3}$

6 A flat wheel of radius 3 feet that is centered at the origin rotates counterclockwise at an angular speed of 5 radians per second. At time $t = 0$ a pebble sticks to the wheel at position $(x, y) = (3, 0)$ and begins rotating with the wheel. What will the y -coordinate of the pebble be at time $t = 3.2$ seconds?

(Hint: notice that the pebble sticks to the wheel at $\theta = 0$ in standard position. What angle is the pebble at after 3.2 seconds? Once you know that angle, how do you find the y -coordinate?)