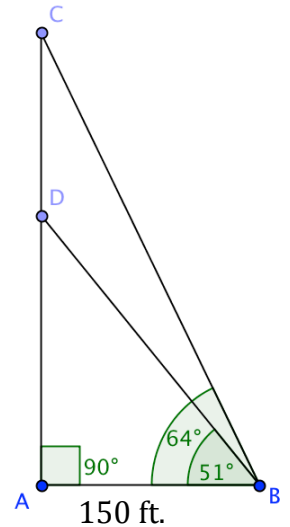


1. a) Convert to radians: 100° b) Convert to degrees: $\frac{7\pi}{15}$
2. The angle subtended by an arc is 54° and the radius is 8 feet,
 - a) find the arc length.
 - b) find the area of the sector.

3. Use the picture below:

- a) Find the distance from point A to point C.
- b) Find the distance between point C and point D.



4. Let θ be in standard position with the point $(-12, 5)$ on its terminal side.

- a) Draw the terminal side of the angle and the reference triangle.
- b) Find the values of the six trig functions.

5. $\sin \theta = \frac{\sqrt{5}}{4}$, $\cot \theta < 0$

- a) Name the quadrant that θ is in.
- b) Draw the terminal side of the angle and the reference triangle.

c) Find the values of the remaining trig functions.

6. Evaluate the following. Give exact answers.

- a) $\tan 210^\circ$
- b) $\cos\left(-\frac{4\pi}{3}\right)$
- c) $\csc^2 \frac{2\pi}{3}$
- d) $\cot \frac{7\pi}{2} + \sec \frac{\pi}{3}$

7.
$$\frac{2 \tan \frac{\pi}{2}}{1 - \tan^2 \frac{\pi}{2}}$$

a) Write the expression as sine, cosine, or tangent of a single angle.

b) Find the exact value of the expression.

8. Find the exact value of $\cos(165^\circ)$

9. Given $\sin \alpha = \frac{1}{2}$, $0 < \alpha < \frac{\pi}{2}$ and $\cos \beta = \frac{3}{4}$, $0 < \beta < \frac{\pi}{2}$

a) find $\tan(\alpha - \beta)$

b) find $\sin(2\alpha)$

c) find $\cos \frac{\beta}{2}$

10. Verify each identity:

a) $\sin \theta \tan \theta + \cos \theta = \sec \theta$

b) $\frac{\sin(\alpha + \beta)}{\tan \alpha + \tan \beta} = \cos \alpha \cos \beta$

c) $1 - \frac{\sin^2 \theta}{1 + \cos \theta} = \cos \theta$