

# Trigonometry Quiz

1. Find the exact values without using a calculator.

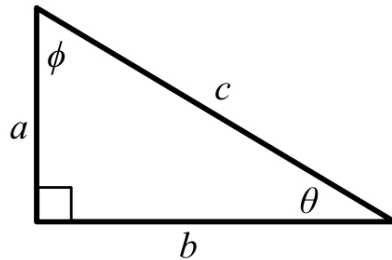
- (a)  $\sin(120^\circ)$       (b)  $\cos(120^\circ)$       (c)  $\tan(120^\circ)$   
(d)  $\csc(120^\circ)$       (e)  $\sec(120^\circ)$       (f)  $\cot(120^\circ)$

2. Find the exact values without using a calculator.

- (a)  $\sin\left(\frac{13\pi}{4}\right)$       (b)  $\cos\left(\frac{13\pi}{4}\right)$       (c)  $\tan\left(\frac{13\pi}{4}\right)$   
(d)  $\csc\left(\frac{13\pi}{4}\right)$       (e)  $\sec\left(\frac{13\pi}{4}\right)$       (f)  $\cot\left(\frac{13\pi}{4}\right)$

3. Given  $a = 3$  and  $c = 5$  calculate:

- (a)  $\sin(\theta)$       (b)  $\sin(\phi)$   
(c)  $\cos(\theta)$       (d)  $\cos(\phi)$   
(e)  $\tan(\theta)$       (f)  $\tan(\phi)$



4. Given  $\cos^{-1}\left(\frac{3}{7}\right) = u$  and  $0 \leq u \leq \pi$  calculate (a)  $\sin(u)$  and (b)  $\tan(u)$ .

5. Verify the following identities:

- (a)  $(\sin \theta + \cos \theta)^2 = 1 + \sin(2\theta)$   
(b)  $\sin^2(\theta) = \frac{1 - \cos(2\theta)}{2}$   
(c)  $\frac{\sin^2(x)}{2 - 2\cos(x)} = \cos^2\left(\frac{x}{2}\right)$

6. Solve the triangle ABC given the following information:

$$c = \sqrt{2}, \quad \alpha = 60^\circ \quad \text{and} \quad \beta = 75^\circ$$

7. Simplify into an algebraic expression (without any trig functions).

$$y = \tan\left(\sin^{-1}\left(\frac{x}{2}\right)\right)$$