⑨ ❧ Trigonometric functions
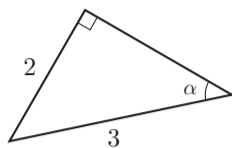
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1 For the right triangle in the figure below, find the sine, cosine, and tangent of the angle α.

a) $\sin \alpha =$

b) $\cos \alpha =$

c) $\tan \alpha =$

2 Express the following expressions in terms of $\sin \theta$, $\cos \theta$, $\tan \theta$.

a) $\sin(90° - \theta) =$

b) $\cos(90° - \theta) =$

c) $\tan(90° - \theta) =$

3 Assuming $\sin \theta = \dfrac{4}{5}$ and $0° < \theta < 90°$, find the following values.

a) $\cos \theta =$

b) $\tan \theta =$

4 Convert the following angles to radians.

a) $90° =$

b) $120° =$

c) $210° =$

d) $225° =$

e) $240° =$

f) $330° =$

5 Convert each radian measure to degrees.

a) $\dfrac{\pi}{6} =$

b) $\dfrac{\pi}{3} =$

c) $\dfrac{3\pi}{4} =$

d) $\dfrac{4\pi}{3} =$

e) $\dfrac{3\pi}{2} =$

f) $\dfrac{7\pi}{4} =$

6 Complete the following table.

θ	$\dfrac{7}{6}\pi$	$\dfrac{7}{4}\pi$	$\dfrac{5}{4}\pi$	$-\dfrac{\pi}{3}$	$-\pi$
$\sin \theta$					
$\cos \theta$					

7 Express the following expressions in terms of $\sin \theta$, $\cos \theta$, $\tan \theta$.

a) $\sin(-\theta) =$

b) $\cos(-\theta) =$

c) $\tan(-\theta) =$

8 Solve each of the following equations for θ assuming $0 \leq \theta < 2\pi$.

a) $\sin \theta = \dfrac{1}{2}$

b) $\cos \theta = -\dfrac{1}{\sqrt{2}}$

c) $\tan \theta = -\dfrac{1}{\sqrt{3}}$