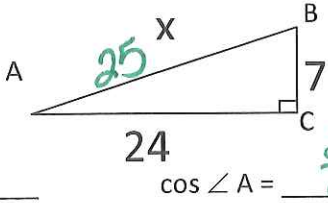# Trig: Ratios, Angles and Sides In-Class Practice

1. Consider the triangle ABC, shown below. Use the Pythagorean Theorem to find the missing side. Then find all trig ratios below and simplify all answers.

$\sin \angle A =$ $\dfrac{7}{25}$ $\cos \angle A =$ $\dfrac{24}{25}$ $\tan \angle A =$ $\dfrac{7}{24}$

$X=$ _____ 25

$$24^2 + 7^2 = x^2$$
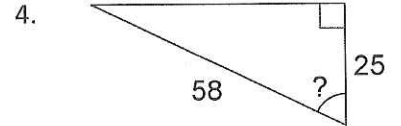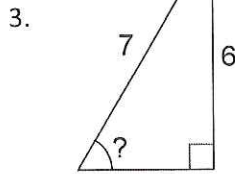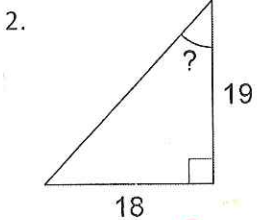$$576 + 49 = x^2$$
$$\sqrt{625} = \sqrt{x^2}$$
$$25 = x$$

$\sin \angle B =$ $\dfrac{24}{25}$ $\cos \angle B =$ $\dfrac{7}{25}$ $\tan \angle B =$ $\dfrac{24}{7}$

Find the missing angle measures.

2.

$$\tan \theta = \dfrac{18}{19}$$
$$\theta = \tan^{-1}\left(\dfrac{18}{19}\right)$$
$$\theta = 43.45°$$

3.

$$\sin \theta = \dfrac{6}{7}$$
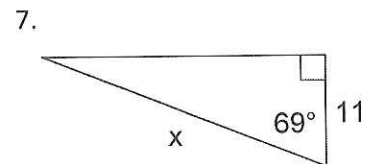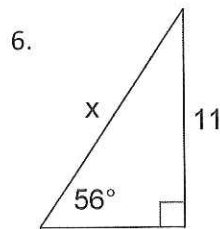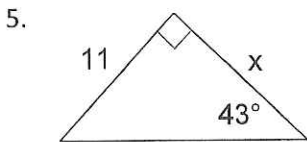$$\theta = \sin^{-1}\left(\dfrac{6}{7}\right)$$
$$\theta = 59.00°$$

4.

$$\cos \theta = \dfrac{25}{58}$$
$$\theta = \cos^{-1}\left(\dfrac{25}{58}\right)$$
$$\theta = 64.47°$$

Find the missing sides.

5.

$$\tan 43 = \dfrac{11}{x}$$
$$\dfrac{\tan 43}{\tan 43} = \dfrac{11}{\tan 43}$$
$$X = 11.80$$

6.

$$\sin 56 = \dfrac{11}{x}$$
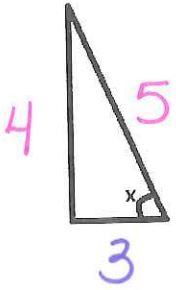$$\dfrac{x \sin 56}{\sin 56} = \dfrac{11}{\sin 56}$$
$$X = 13.27$$

7.

$$x \cos 69 = \dfrac{11}{x} \cdot x$$
$$\dfrac{x \cos 69}{\cos 69} = \dfrac{11}{\cos 69}$$
$$X = 30.69$$

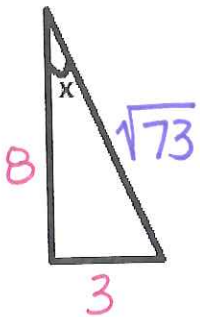8. In the right triangle below, if $\sin x = \frac{4}{5}$, what is $\cos x$? What is $\tan x$?

$$y^2 + 4^2 = 5^2$$
$$y^2 = 9$$
$$y = 3$$

$$\cos x = \boxed{\frac{3}{5}}$$

$$\tan x = \boxed{\frac{4}{3}}$$

(triangle with sides 4, 5, 3 and angle x)

9. In the right triangle below, if $\tan x = \frac{3}{8}$, what is $\sin x$? What is $\cos x$?

$$8^2 + 3^2 = y^2$$
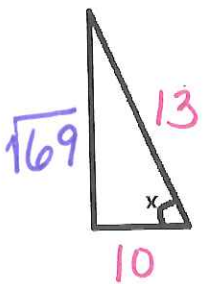$$\sqrt{73} = \sqrt{y^2}$$
$$\sqrt{73} = y$$

$$\sin x = \frac{3}{\sqrt{73}} = \boxed{\frac{3\sqrt{73}}{73}}$$

$$\cos x = \frac{8}{\sqrt{73}} = \boxed{\frac{8\sqrt{73}}{73}}$$

* remember to simplify fraction if you can

(triangle with sides 8, $\sqrt{73}$, 3 and angle x)

10. In the right triangle below, if $\cos x = \frac{10}{13}$, what is $\sin x$? What is $\tan x$?

$$y^2 + 10^2 = 13^2$$
$$y^2 = 69$$
$$y = \sqrt{69}$$

$$\sin x = \boxed{\frac{\sqrt{69}}{13}}$$

$$\tan x = \boxed{\frac{\sqrt{69}}{10}}$$

(triangle with sides $\sqrt{69}$, 13, 10 and angle x)