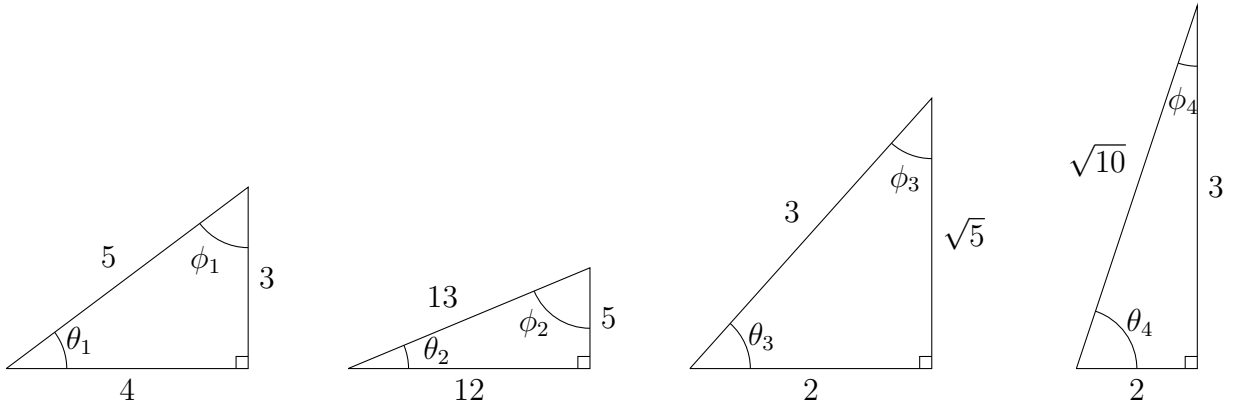# Trigonometry practice

1. For the angles $\theta_1, \theta_2, \theta_3, \theta_4, \phi_1, \phi_2, \phi_3$, and ϕ_4 above, compute their sine, cosine, and tangent.

2. What relationships (if any) do you see between the two (non-right) angles of a right-triangle in terms of their evaluation of trigonometric functions?

3. Simplify the following expressions

$$\arctan\left(\cos\left(\frac{\pi}{2}\right)\right), \qquad \arccos\left(\sin\left(\frac{2\pi}{3}\right)\right), \qquad \arcsin\left(\tan\left(\frac{\pi}{4}\right)\right)$$

$$\arccos\left(\sin\left(\frac{\pi}{3}\right)\right), \qquad \arctan\left(\sin\left(\frac{3\pi}{2}\right)\right), \qquad \arcsin\left(\cos\left(\frac{5\pi}{6}\right)\right)$$

4. Simplify the following expressions

$$\tan\left(\arccos\left(\frac{1}{\sqrt{2}}\right)\right), \qquad \cos\left(\arcsin\left(\frac{\sqrt{3}}{2}\right)\right), \qquad \sin\left(\arctan\left(\sqrt{3}\right)\right)$$

$$\cos\left(\arctan\left(\frac{-1}{\sqrt{3}}\right)\right), \qquad \sin\left(\arccos\left(\frac{1}{3}\right)\right), \qquad \cos\left(\arctan\left(\frac{3}{4}\right)\right)$$