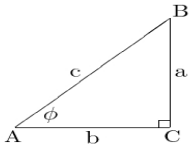
Worksheet 3.3 Trigonometry

Section 1 Review of Trig Ratios

Worksheet 2.8 introduces the trig ratios of sine, cosine, and tangent. To review the ratios, consider a triangle ABC with angle ϕ as marked.



The hypotenuse (hyp) of the triangle is c; the adjacent (adj) side is b; the opposite (opp) side is a. The side of length a is opposite the angle, and the side of length b is the side adjacent to the angle which is *not* the hypotenuse. Then we have

$$\begin{aligned} \sin\phi &= \frac{\text{opp}}{\text{hyp}} = \frac{a}{c} \\ \cos\phi &= \frac{\text{adj}}{\text{hyp}} = \frac{b}{c} \\ \tan\phi &= \frac{\text{opp}}{\text{adj}} = \frac{a}{b} \end{aligned}$$

Note also that

$$\frac{\sin\phi}{\cos\phi} = \frac{\frac{a}{c}}{\frac{b}{c}} = \frac{a}{b} = \tan\phi$$

Exercises:

1. For the following triangle, find the ratios:

   (a) $\sin\theta$
   (b) $\tan\theta$
   (c) $\cos\theta$