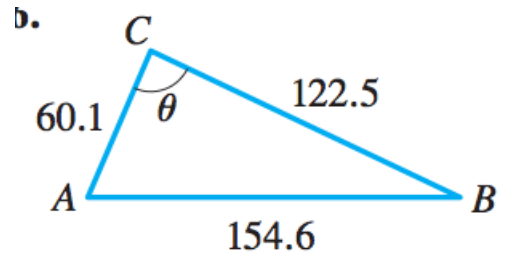
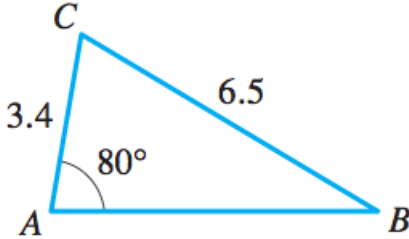
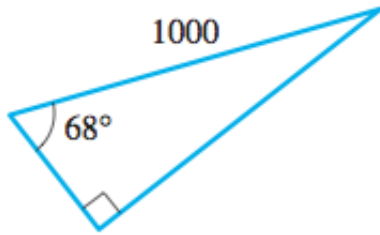


1. Solving Triangles



2. If $\sin t = 3/5$ and the terminal point of t is in quadrant II, find $\cos t$, $\tan t$, $\sec t$, $\cot t$ and $\csc t$.

3. Angles

What angle in the interval $[0, 2\pi)$ is co-terminal with $17\pi/3$?

4. Trigonometric Equations

Solve

$$4 \cos^2 \theta - 13 \cos \theta + 3 = 0$$

5. Trigonometric Identities

Verify

$$\sec^4 x - \tan^4 x = \sec^2 x + \tan^2 x$$

Verify

$$\frac{\cos \theta}{1 - \sin \theta} = \sec \theta + \tan \theta$$

Verify

$$(\sin x - \tan x)(\cos x - \cot x) = (\cos x - 1)(\sin x - 1)$$

Verify

$$\frac{\sin x + \cos x}{\sec x + \csc x} = \sin x \cos x$$

Verify

$$\tan^2 u - \sin^2 u = \tan^2 u \sin^2 u$$

Verify

$$\cos(-x) - \sin(-x) = \cos x + \sin x$$

6. Evaluations

Evaluate exactly (no decimals)

(a)

$$\sin \frac{5\pi}{3}$$

(b)

$$\sec \frac{6\pi}{3}$$

(c)

$$\cos \frac{5\pi}{4}$$

(d)

$$\tan \frac{17\pi}{6}$$

7. Graphing and Interpreting Trigonometric Functions

Sketch a graph, determine the domain, determine all zeros, and determine the amplitude, period and phase shift (where appropriate)

(a)

$$\sin x$$

(b)

$$3 \cos (2\pi x)$$

(c)

$$\tan x$$

(d)

$$y = 9 \sin (4x - \pi)$$

8. Trig Functions of Real Numbers

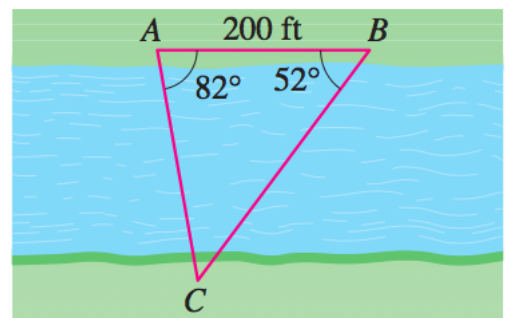
Compute the following by hand

$$\sin \left(\frac{-37\pi}{6} \right) \text{_____}$$

$$\sec \left(\frac{37\pi}{6} \right) \text{_____}$$

9. You and your roommate leave your room at the same time, heading to the PEIF which is 2 miles away. Your roommate walks at a speed of $4 \frac{m}{h}$ and you ride your single speed mountain bike. Your bike has 30 inch wheels (in diameter) and your gear ratio is 2-1 (so one rotation of the pedals gives two rotations of your wheels). If you pedal an average of 40 RPMs, **(A)** what is your average speed in miles-per-hour and **(B)** how many minutes ahead of your roommate do you arrive at the PEIF?

How far does your bike travel if you roll the wheels through an angle of 45 degrees?



10. Find the shortest distance across the river as shown in the figure.