

Name:

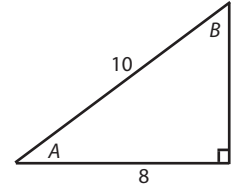
2-A Angles in Right Triangles

1. State the value of each of the following trig functions for the triangle at right.

a) $\cos A$

b) $\sin B$

c) $\tan A$



d) $\sec A$

e) $\cot B$

f) $\csc A$

2. Calculate.

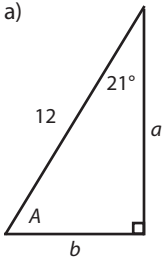
a) $\sin 30^\circ$

b) $\csc 30^\circ$

c) $\sec -228^\circ$

3. Solve.

a)



b) a right triangle with leg 40 and hypotenuse 46

2-B Angles in Circles

4. Find the following values for an angle in standard position that passes through the point (2, -5).

a) $\sin \theta$

b) $\cos \theta$

c) $\tan \theta$

d) $\csc \theta$

e) $\sec \theta$

f) $\cot \theta$

5. Find the smallest positive coterminal angle for each of the following angles.

a) 400°

b) 2840°

c) -510°

6. Sketch the following angles in standard position.

a) 200°

b) -160°

c) 800°

7. Find the reference angle for each of the following angles.

a) 200°

b) -160°

c) 800°

8. Find the following without a calculator by sketching the reference angle and using it to make a right triangle with labeled sides.

a) $\sin 150^\circ$

b) $\cos 150^\circ$

c) $\tan 585^\circ$

2-C Radians

9. Convert.

a) $11\pi/3$ radians to degrees

b) 540° to radians

c) 225° to radians

10. State the following for $\theta = 8\pi/3$. Do not use degrees or a calculator.

a) the smallest positive coterminal angle

b) a sketch in standard position

c) its reference angle.

d) $\sin \theta$

e) $\cos \theta$

f) $\tan \theta$

2-D The Unit Circle

11. Use a unit circle to find the following. Write ratios as fractions, and write angles in radians.

a) $\sin 30^\circ$

b) $\sin 150^\circ$

c) $\sin 330^\circ$

d) $\cos 330^\circ$

e) $\cos 1050^\circ$

f) $\tan 5\pi/6$

a) $\sin^{-1} \sqrt{3}/2$

b) $\sin^{-1} -\sqrt{3}/2$

c) $\tan^{-1} 1$

d) $\tan^{-1} -\sqrt{3}$

e) $\arccos 1/2$

f) $\arcsin \sqrt{3}$

2-E Trigonometric Identities

12. Rewrite without a fraction.

a) $\frac{1}{\cos x}$

b) $\frac{\sin x}{\cos x}$

c) $\frac{\sin^2 x}{\cos x}$

13. Rewrite using only sine and cosine.

a) $\tan \theta \sec \theta$

b) $\cot^2 \theta$

c) $\sec^2 \theta \csc \theta$

14. Rewrite using a Pythagorean identity.

a) $\tan^2 \theta + 1$

b) $\sin^2 \theta - 1$

c) $-\sin^2 \theta - \cos^2 \theta$

d) $8 - \cos^2 x$

e) $\sec^2 x + \tan^2 x$

f) $2 \sin^2 x + \cos^2 x$

15. Write as two separate fractions, and simplify each fraction.

a) $\frac{1 + \cos x}{\cos x}$

b) $\frac{\sin x + \cos x}{\sin^2 x}$

c) $\frac{1 - \cos x}{\sec x}$

16. Add or subtract.

a) $\frac{\tan x}{\cos x} + \frac{\sin x}{\tan x}$

b) $\frac{1}{\cos x} - \frac{\cos x}{1}$

c) $\csc \theta - \sin \theta$

17. Multiply the numerator and denominator by the conjugate of the denominator, and simplify.

a) $\frac{\sin x}{1 + \cos x}$

b) $\frac{1}{\csc x - \cot x}$

c) $\frac{\cos x}{\csc x + 1}$

18. Verify the identity.

a) $\frac{\csc x}{\cot x} = \sec x$

b) $2 - \sec^2 x = 1 - \tan^2 x$

c) $\csc x - \sin x = \cos x \cot x$

d) $\frac{\cos x}{1 + \sin x} + \frac{1 + \sin x}{\cos x} = 2 \sec x$