

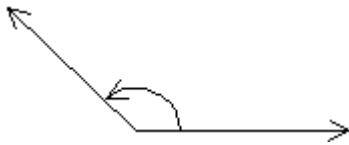
Name \_\_\_\_\_

Draw the given angle in standard position. Draw an arrow representing the correct amount of rotation. Find the measure of two other angles, one positive and one negative, coterminal with the given angle.

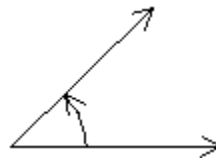
1)  $50^\circ$

1) \_\_\_\_\_

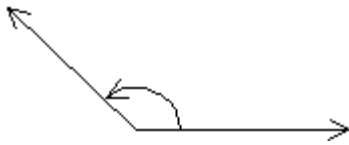
A)  $410^\circ$  and  $-310^\circ$



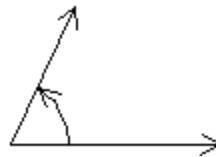
B)  $410^\circ$  and  $-310^\circ$



C)  $230^\circ$  and  $-130^\circ$



D)  $230^\circ$  and  $-130^\circ$



Evaluate the expression.

2)  $\sec(-90^\circ)$

2) \_\_\_\_\_

A) Undefined

B)  $\frac{2\sqrt{3}}{3}$

C) 0

D) -1

3)  $\cot 450^\circ$

3) \_\_\_\_\_

A) 0

B) 1

C)  $\frac{\sqrt{2}}{2}$

D) Undefined

4)  $\sin(-180^\circ)$

4) \_\_\_\_\_

A) 0

B) Undefined

C) 1

D) -1

5)  $5 \tan 180^\circ + 9 \csc 270^\circ$

5) \_\_\_\_\_

A) Undefined

B) -9

C) 9

D) 0

6)  $\cos 360^\circ - 5 \sin 90^\circ$

A) -4

B) -5

C) 1

D) 0

6) \_\_\_\_\_

Suppose that  $\theta$  is in standard position and the given point is on the terminal side of  $\theta$ . Give the exact value of the indicated trig function for  $\theta$ .

7) (4, 5); Find  $\tan \theta$ .

A)  $\frac{4}{5}$

B)  $\frac{5}{6}$

C)  $\frac{2}{3}$

D)  $\frac{5}{4}$

7) \_\_\_\_\_

8) (-20, 48); Find  $\sin \theta$ .

A)  $-\frac{5}{13}$

B)  $\frac{5}{13}$

C)  $\frac{12}{13}$

D)  $-\frac{12}{13}$

8) \_\_\_\_\_

9) (12, 16); Find  $\sin \theta$ .

A)  $\frac{4}{3}$

B)  $\frac{3}{5}$

C)  $\frac{4}{5}$

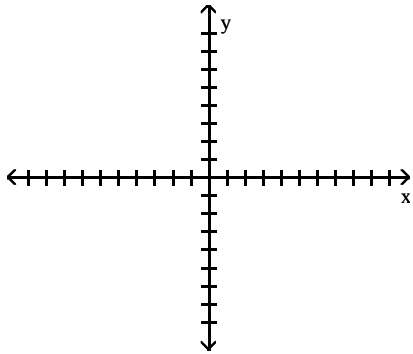
D)  $\frac{3}{4}$

9) \_\_\_\_\_

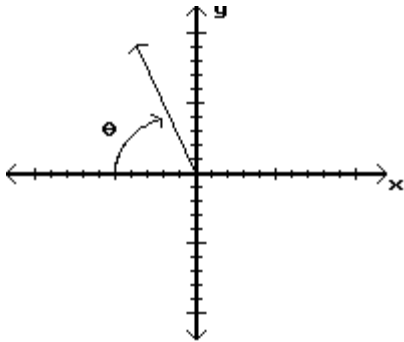
Sketch an angle  $\theta$  in standard position such that  $\theta$  has the smallest positive measure and the given point is on the terminal side of  $\theta$ .

10)  $(-2, 5)$

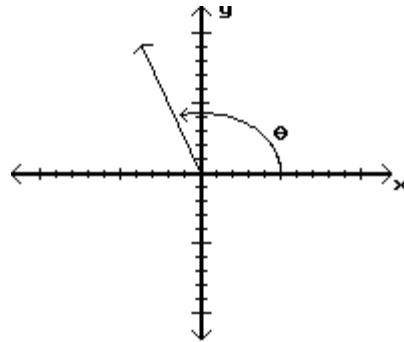
10) \_\_\_\_\_



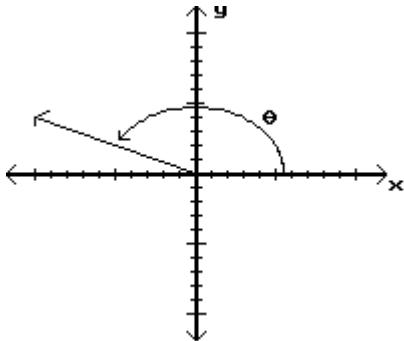
A)



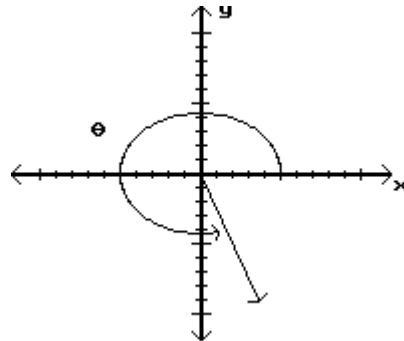
B)



C)



D)



Identify the quadrant for the angle  $\theta$  satisfying the following conditions.

11)  $\cot \theta < 0$  and  $\cos \theta > 0$

11) \_\_\_\_\_

A) Quadrant I

B) Quadrant III

C) Quadrant IV

D) Quadrant II

12)  $\sin \theta > 0$  and  $\cos \theta < 0$

12) \_\_\_\_\_

A) Quadrant IV

B) Quadrant III

C) Quadrant II

D) Quadrant I

13)  $\tan \theta > 0$  and  $\sin \theta < 0$

13) \_\_\_\_\_

A) Quadrant IV

B) Quadrant II

C) Quadrant III

D) Quadrant I

**Determine the signs of the given trigonometric functions of an angle in standard position with the given measure.**

14)  $\csc (558^\circ)$  and  $\cot (558^\circ)$

14) \_\_\_\_\_

A) positive and positive

B) positive and negative

C) negative and positive

D) negative and negative

15)  $\cos (433^\circ)$  and  $\sin (433^\circ)$

15) \_\_\_\_\_

A) negative and positive

B) negative and negative

C) positive and positive

D) positive and negative

**Use the fundamental identities to find the value of the trigonometric function.**

16) Find  $\sec \theta$ , given that  $\tan \theta = \frac{3}{4}$  and  $\theta$  is in quadrant I.

16) \_\_\_\_\_

A)  $\frac{3\sqrt{7}}{7}$

B)  $-\frac{\sqrt{7}}{9}$

C)  $\frac{5}{4}$

D)  $-\frac{3}{2}$

17) Find  $\sin \theta$ , given that  $\cos \theta = \frac{2}{3}$  and  $\theta$  is in quadrant IV.

17) \_\_\_\_\_

A)  $\frac{3\sqrt{7}}{7}$

B)  $-\frac{\sqrt{5}}{3}$

C)  $\frac{5}{4}$

D)  $-\frac{3}{2}$

18) Find  $\csc \theta$ , given that  $\cot \theta = -\frac{3}{10}$  and  $\cos \theta < 0$ .

18) \_\_\_\_\_

A)  $-\frac{3\sqrt{109}}{109}$

B)  $\frac{3\sqrt{109}}{109}$

C)  $-\frac{\sqrt{109}}{3}$

D)  $\frac{\sqrt{109}}{10}$

19) Find  $\sin \theta$ , given that  $\cos \theta = \frac{2}{9}$  and  $\tan \theta < 0$ .

19) \_\_\_\_\_

A)  $-\frac{9}{2}$

B)  $-\sqrt{77}$

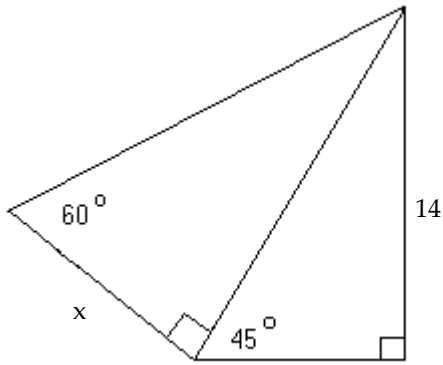
C)  $-\frac{\sqrt{77}}{2}$

D)  $-\frac{\sqrt{77}}{9}$

**Solve the problem.**

20) Find the exact value of  $x$  in the figure.

20) \_\_\_\_\_



A)  $7\sqrt{6}$

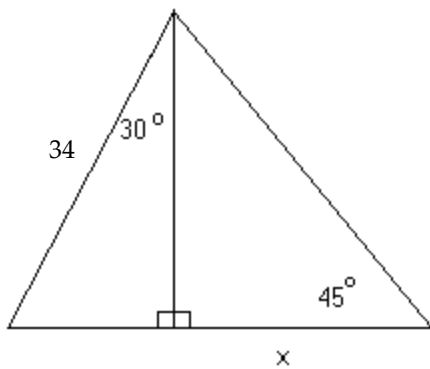
B)  $7\sqrt{3}$

C)  $\frac{14\sqrt{3}}{3}$

D)  $\frac{14\sqrt{6}}{3}$

21) Find the exact value of  $x$  in the figure.

21) \_\_\_\_\_



A)  $17\sqrt{3}$

B)  $17\sqrt{6}$

C)  $15\sqrt{3}$

D)  $18\sqrt{3}$

**Suppose ABC is a right triangle with sides of lengths a, b, and c and right angle at C. Find the unknown side length using the Pythagorean theorem and then find the value of the indicated trigonometric function of the given angle. Rationalize the denominator if applicable.**

22) Find  $\tan B$  when  $a = 96$  and  $c = 100$ .

22) \_\_\_\_\_

A)  $\frac{24}{25}$

B)  $\frac{24}{7}$

C)  $\frac{7}{25}$

D)  $\frac{7}{24}$

23) Find  $\sin A$  when  $b = 24$  and  $c = 40$

23) \_\_\_\_\_

A)  $\frac{3}{4}$

B)  $\frac{3}{5}$

C)  $\frac{4}{5}$

D)  $\frac{5}{4}$

Find all values of  $\theta$ , if  $\theta$  is in the interval  $[0, 360^\circ)$  and has the given function value.

24)  $\sin \theta = \frac{\sqrt{3}}{2}$

24) \_\_\_\_\_

A)  $60^\circ$  and  $120^\circ$

B)  $60^\circ$  and  $300^\circ$

C)  $150^\circ$  and  $210^\circ$

D)  $210^\circ$  and  $330^\circ$

25)  $\cos \theta = \frac{1}{2}$

25) \_\_\_\_\_

A)  $150^\circ$  and  $210^\circ$

B)  $60^\circ$  and  $300^\circ$

C)  $210^\circ$  and  $330^\circ$

D)  $60^\circ$  and  $120^\circ$

Give the exact value.

26)  $\csc 330^\circ$

26) \_\_\_\_\_

A) -2

B)  $\frac{2\sqrt{3}}{3}$

C) 2

D)  $-\frac{2\sqrt{3}}{3}$

27)  $\sec 150^\circ$

27) \_\_\_\_\_

A)  $\frac{2\sqrt{3}}{3}$

B)  $-\sqrt{2}$

C)  $-\frac{2\sqrt{3}}{3}$

D)  $\sqrt{2}$

28)  $\cot 120^\circ$

28) \_\_\_\_\_

A)  $-\sqrt{3}$

B)  $-\frac{\sqrt{3}}{3}$

C) -1

D)  $\frac{\sqrt{3}}{3}$

29)  $\tan 300^\circ$

29) \_\_\_\_\_

A)  $\frac{\sqrt{3}}{3}$

B)  $-\frac{\sqrt{3}}{3}$

C)  $-\sqrt{3}$

D)  $\sqrt{3}$

30)  $\cos 210^\circ$

30) \_\_\_\_\_

A)  $-\frac{\sqrt{2}}{2}$

B)  $\frac{\sqrt{3}}{2}$

C)  $-\frac{\sqrt{3}}{2}$

D)  $\frac{\sqrt{2}}{2}$

**Find the exact trigonometric function value.**

31)  $\cos 960^\circ$

31) \_\_\_\_\_

A)  $-\frac{\sqrt{3}}{2}$

B)  $-\sqrt{3}$

C)  $-\frac{1}{2}$

D)  $\frac{\sqrt{2}}{2}$

32)  $\sin (-1680^\circ)$

32) \_\_\_\_\_

A)  $\frac{\sqrt{3}}{2}$

B)  $-1$

C)  $\frac{\sqrt{2}}{2}$

D)  $\frac{1}{2}$

**Find the reference angle for the given angle.**

33)  $-400^\circ$

33) \_\_\_\_\_

A)  $130^\circ$

B)  $50^\circ$

C)  $140^\circ$

D)  $40^\circ$

34)  $211.4^\circ$

34) \_\_\_\_\_

A)  $31.4^\circ$

B)  $121.4^\circ$

C)  $148.6^\circ$

D)  $58.6^\circ$

35)  $138^\circ$

35) \_\_\_\_\_

A)  $42^\circ$

B)  $58^\circ$

C)  $52^\circ$

D)  $48^\circ$

36)  $78^\circ$

36) \_\_\_\_\_

A)  $12^\circ$

B)  $102^\circ$

C)  $168^\circ$

D)  $78^\circ$

**Write the expression in terms of sine and cosine, and simplify so that no quotients appear in the final expression.**

37)  $\frac{\csc x \cot x}{\sec x}$

37) \_\_\_\_\_

A)  $1$

B)  $\cot^2 x$

C)  $\csc^2 x$

D)  $\sec^2 x$

38)  $\csc x(\sin x + \cos x)$

38) \_\_\_\_\_

A)  $-2 \tan^2 x$

B)  $\sin x \tan x$

C)  $\sec x \csc x$

D)  $1 + \cot x$

**Factor the trigonometric expression and simplify.**

39)  $\sin^2x + \sin^2x \cot^2x$

39) \_\_\_\_\_

A) 1

B)  $\cot^2x + 1$

C)  $\sin^2x + 1$

D)  $\cot^2x - 1$

40)  $1 - 2 \sin^2x + \sin^4x$

40) \_\_\_\_\_

A)  $(1 - \sin^2x)$

B)  $\sin^2x$

C)  $\cos^4x$

D)  $(1 + \tan^2x)$

**Perform the indicated operations and simplify the result.**

41)  $\frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta}$

41) \_\_\_\_\_

A)  $\sin \theta \tan \theta$

B)  $1 + \cot \theta$

C)  $\sec \theta \csc \theta$

D)  $-2 \tan^2\theta$

42)  $\frac{\sin \theta}{1 + \sin \theta} - \frac{\sin \theta}{1 - \sin \theta}$

42) \_\_\_\_\_

A)  $1 + \cot \theta$

B)  $-2 \tan^2\theta$

C)  $\sec \theta \csc \theta$

D)  $\sin \theta \tan \theta$

**Use the fundamental identities to simplify the expression.**

43)  $\frac{\csc \theta \cot \theta}{\sec \theta}$

43) \_\_\_\_\_

A)  $\sec^2\theta$

B) 1

C)  $\cot^2\theta$

D)  $\csc^2\theta$

**Find the area of triangle ABC with the given parts.**

44)  $A = 29.4^\circ$   
 $b = 11.0$  in  
 $c = 8.4$  in

44) \_\_\_\_\_

A)  $40$  in<sup>2</sup>

B)  $42$  in<sup>2</sup>

C)  $21$  in<sup>2</sup>

D)  $23$  in<sup>2</sup>



## Answer Key

Testname: 12SPR\_M1\_CH6\_PROBS

- 1) B
- 2) A
- 3) A
- 4) A
- 5) B
- 6) A
- 7) D
- 8) C
- 9) C
- 10) B
- 11) C
- 12) C
- 13) C
- 14) C
- 15) C
- 16) C
- 17) B
- 18) D
- 19) D
- 20) D
- 21) A
- 22) D
- 23) C
- 24) A
- 25) B
- 26) A
- 27) C
- 28) B
- 29) C
- 30) C
- 31) C
- 32) A
- 33) D
- 34) A
- 35) A
- 36) D
- 37) B
- 38) D
- 39) A
- 40) C
- 41) C
- 42) B
- 43) C
- 44) D