

Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.**Find the complement and the supplement of the given angle. If the angle has no complement or supplement state so.**

- | | | | |
|-----------------|--|--|----------|
| 1) 79° | <p>A) Complement is 101°
Supplement is 11°</p> <p>C) Complement is 169°
Supplement is 101°</p> | <p>B) Complement is 11°
Supplement is 101°</p> <p>D) Complement is 101°
Supplement is 169°</p> | 1) _____ |
| 2) 113° | <p>A) Complement is -23°
Supplement is 67°</p> <p>C) No complement
Supplement is -23°</p> | <p>B) No complement
Supplement is 67°</p> <p>D) Complement is 67°
No supplement</p> | 2) _____ |
| 3) 218° | <p>A) Complement is -38°
Supplement is 142°</p> <p>C) Complement is -128°
Supplement is -38°</p> | <p>B) No complement
Supplement is 142°</p> <p>D) No complement
No supplement</p> | 3) _____ |
| 4) -16° | <p>A) Complement is 74°
Supplement is 164°</p> <p>C) No complement
Supplement is 196°</p> | <p>B) No complement
No supplement</p> <p>D) Complement is 106°
No supplement</p> | 4) _____ |
| 5) -154° | <p>A) Complement is -64°
Supplement is 26°</p> <p>C) No complement
Supplement is 334°</p> | <p>B) No complement
No supplement</p> <p>D) Complement is 244°
No supplement</p> | 5) _____ |

Find the sum $\alpha + \beta$ or the difference $\alpha - \beta$ as indicated.

- | | | | |
|--|--|--|----------|
| 6) Find $\alpha + \beta$.
$\alpha = 235^\circ 51'$, $\beta = 299^\circ 58'$ | <p>A) $50^\circ 109'$</p> <p>B) $535^\circ 109'$</p> | <p>C) $50^\circ 49'$</p> <p>D) $535^\circ 49'$</p> | 6) _____ |
| 7) Find $\alpha - \beta$.
$\alpha = 92^\circ 20'$, $\beta = 13^\circ 32'$ | <p>A) $79^\circ 12'$</p> <p>B) $79^\circ 32'$</p> | <p>C) $105^\circ 52'$</p> <p>D) $78^\circ 48'$</p> | 7) _____ |
| 8) Find $\alpha - \beta$.
$\alpha = 90^\circ$, $\beta = 43^\circ 32'$ | <p>A) $46^\circ 32'$</p> <p>B) $47^\circ 32'$</p> | <p>C) $47^\circ 28'$</p> <p>D) $46^\circ 28'$</p> | 8) _____ |

9) Find $\alpha - \beta$.

$$\alpha = 180^\circ, \beta = 73^\circ 59' 28''$$

A) $106^\circ 1' 32''$

B) $106^\circ 0' 32''$

C) $107^\circ 1' 32''$

D) $107^\circ 0' 32''$

9) _____

10) Find $\alpha - \beta$.

$$\alpha = 90^\circ, \beta = 33^\circ 28' 42''$$

A) $56^\circ 32' 18''$

B) $56^\circ 31' 17''$

C) $56^\circ 31' 18''$

D) $57^\circ 32' 18''$

10) _____

Convert the angle to decimal degree notation. Round your answer to two decimal places.

11) $69^\circ 38'$

A) 69.69°

B) 69.64°

C) 69.63°

D) 69.59°

11) _____

12) $45^\circ 45' 10''$

A) 45.75°

B) 45.76°

C) 45.81°

D) 45.71°

12) _____

13) $-62^\circ 47' 13''$

A) -62.79°

B) -62.73°

C) -62.83°

D) -62.78°

13) _____

Convert the angle to DMS notation. Round your answer to the nearest second.

14) 19.86°

A) $19^\circ 51' 24''$

B) $19^\circ 51' 36''$

C) $19^\circ 51' 42''$

D) $19^\circ 51' 86''$

14) _____

15) 169.31°

A) $169^\circ 18' 31''$

B) $169^\circ 16' 31''$

C) $169^\circ 19' 36''$

D) $169^\circ 18' 36''$

15) _____

16) 43.070°

A) $43^\circ 4' 7''$

B) $43^\circ 4' 0''$

C) $43^\circ 4' 18''$

D) $43^\circ 4' 12''$

16) _____

17) 151.0703°

A) $151^\circ 4' 17''$

B) $151^\circ 5' 7''$

C) $151^\circ 4' 5''$

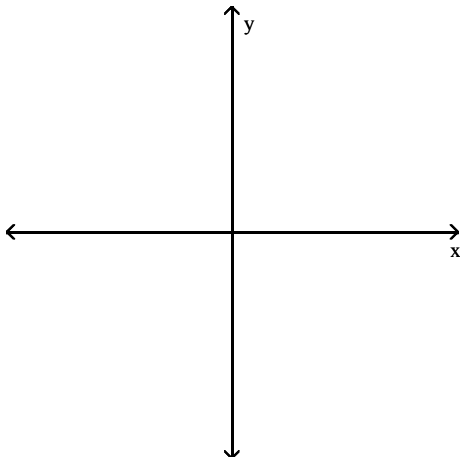
D) $151^\circ 4' 13''$

17) _____

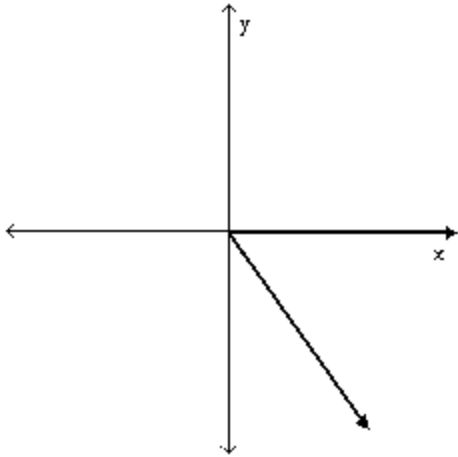
Draw the angle in standard position and state the quadrant in which it lies.

18) 420°

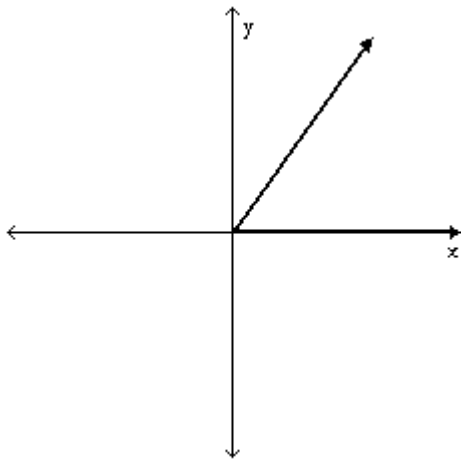
18) _____



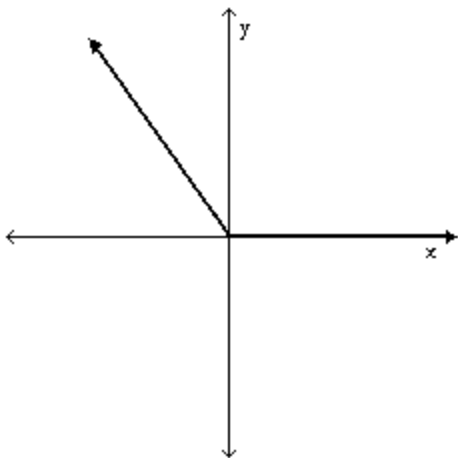
A) quadrant IV



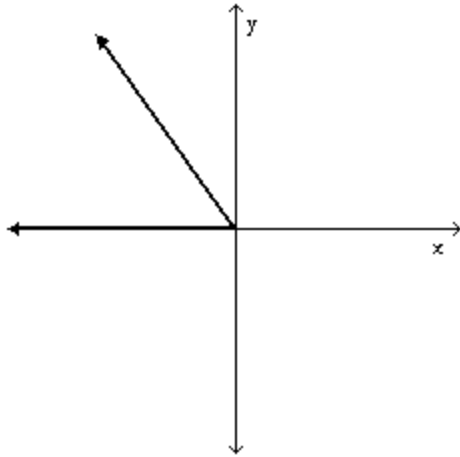
B) quadrant I



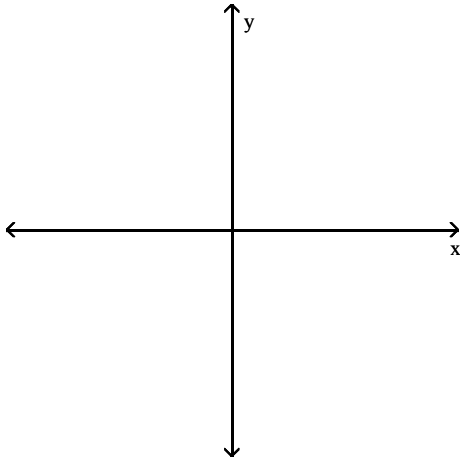
C) quadrant II



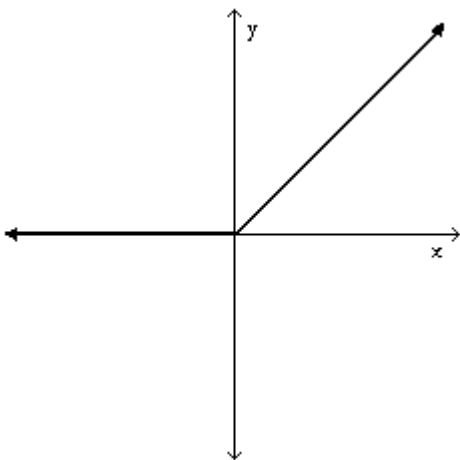
D) quadrant II



19) 495°

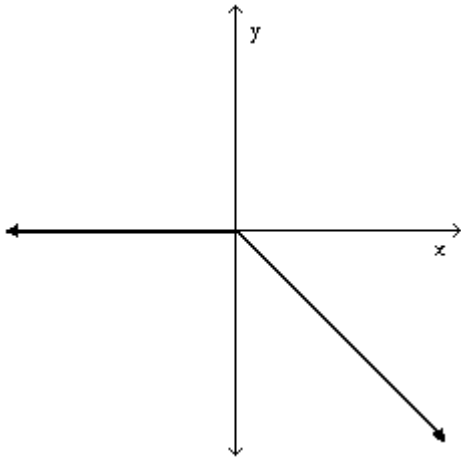


A) quadrant I

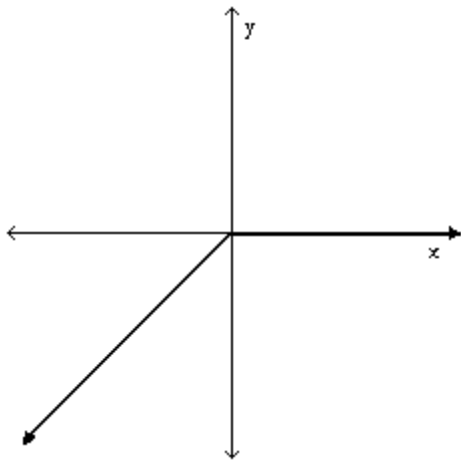


19) _____

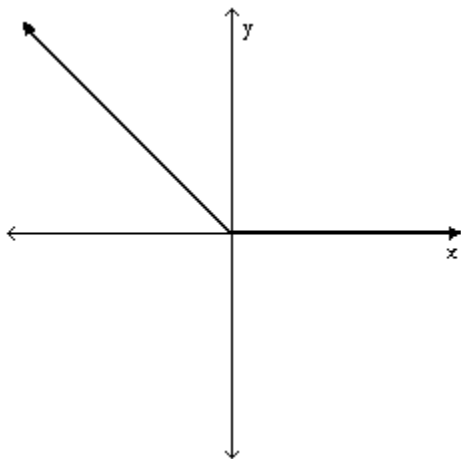
B) quadrant IV



C) quadrant III

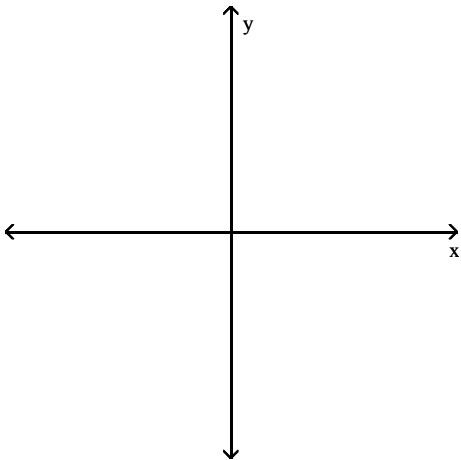


D) quadrant II

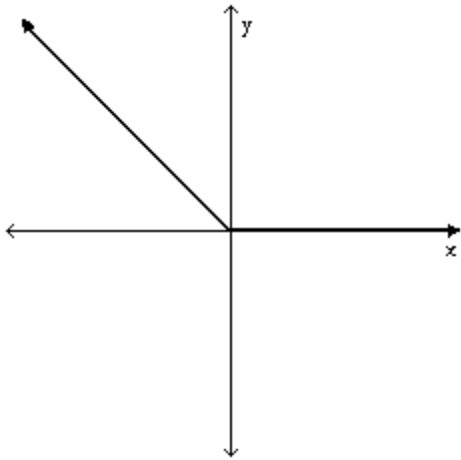


20) 585°

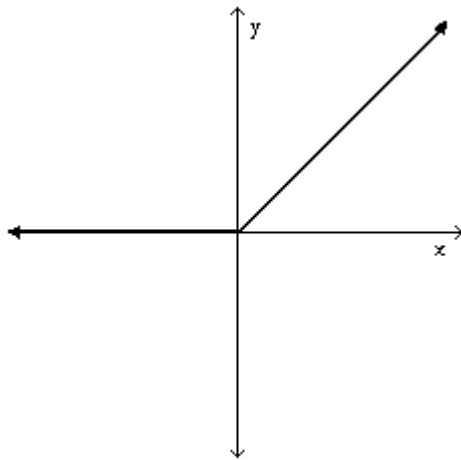
20) _____



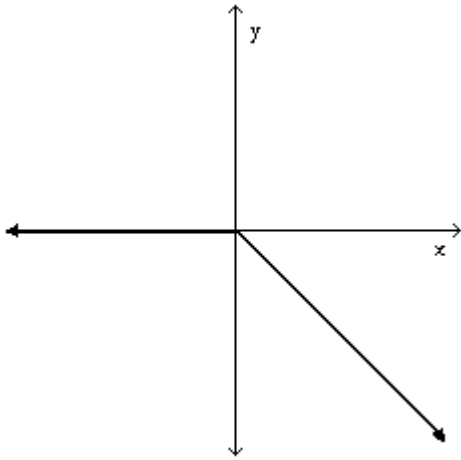
A) quadrant II



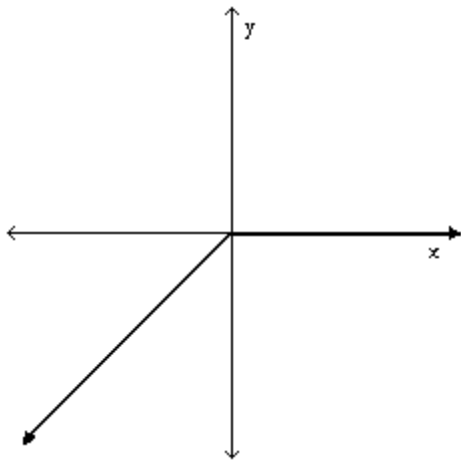
B) quadrant I



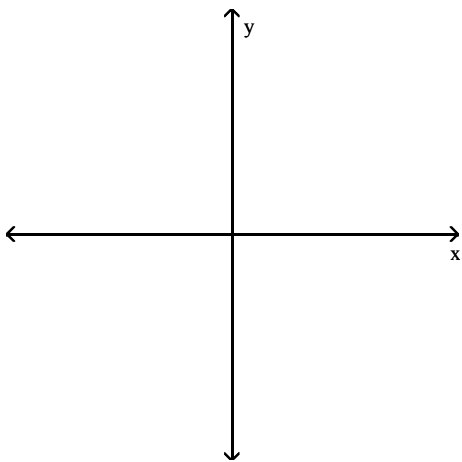
C) quadrant IV



D) quadrant III

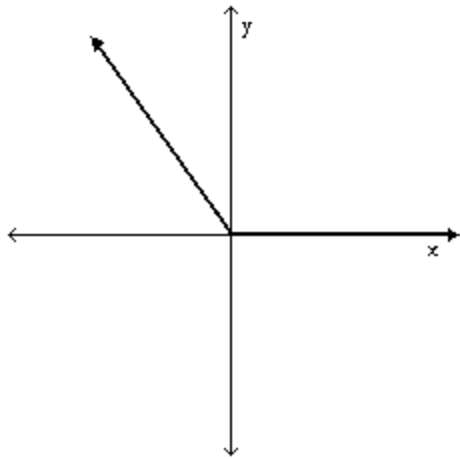


21) 660°

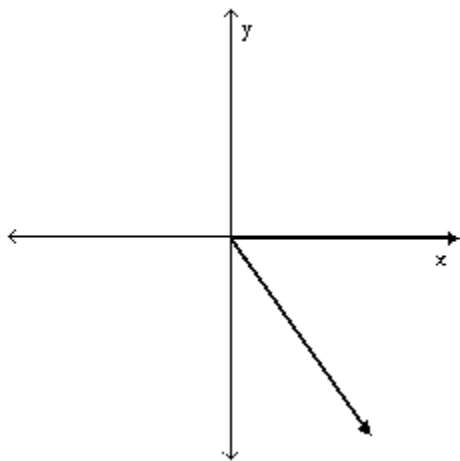


21) _____

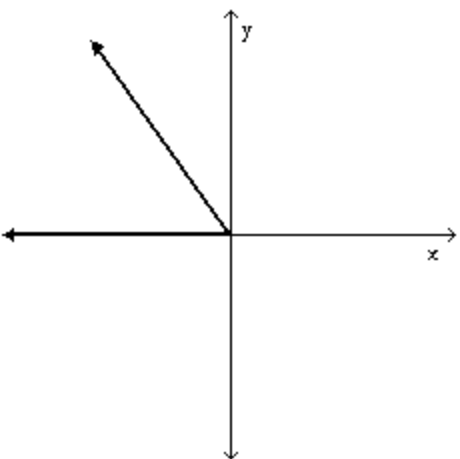
A) quadrant II



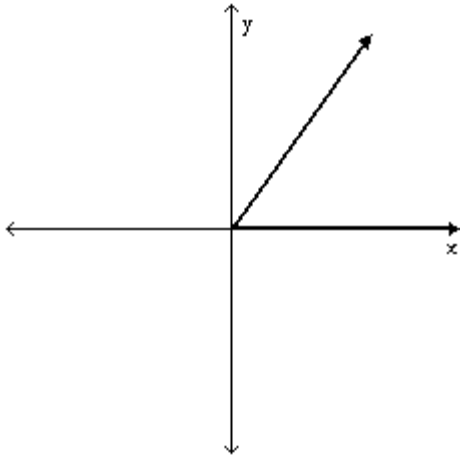
B) quadrant IV



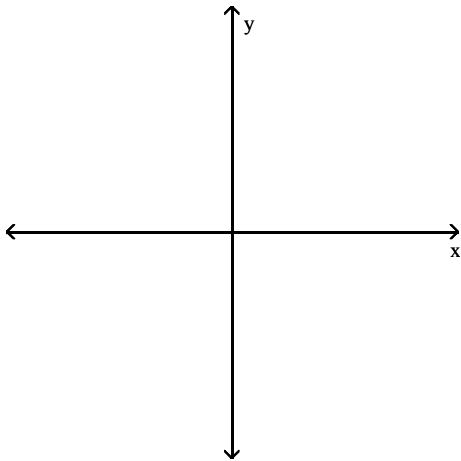
C) quadrant II



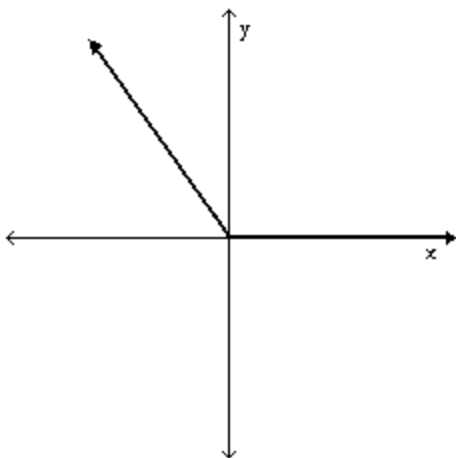
D) quadrant I



22) 780°

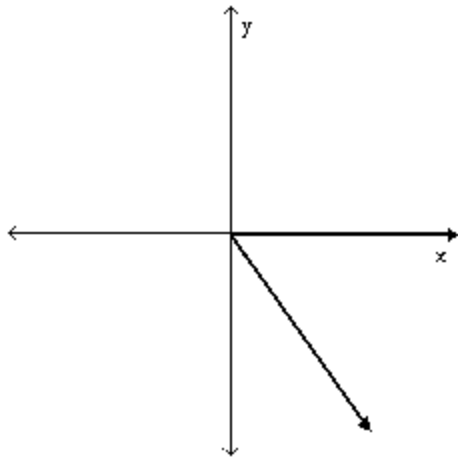


A) quadrant II

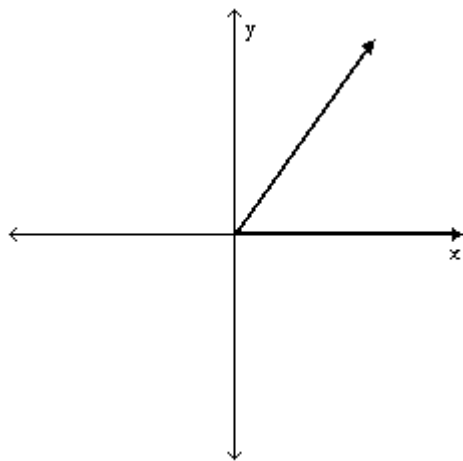


22) _____

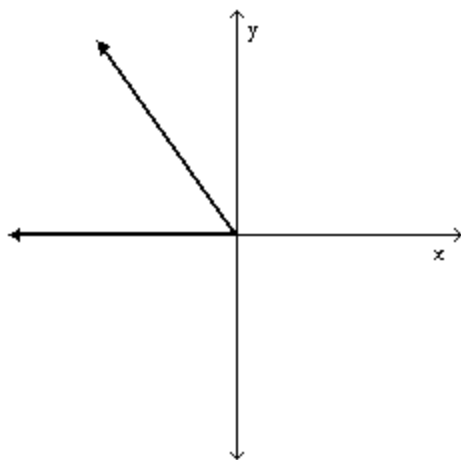
B) quadrant IV



C) quadrant I

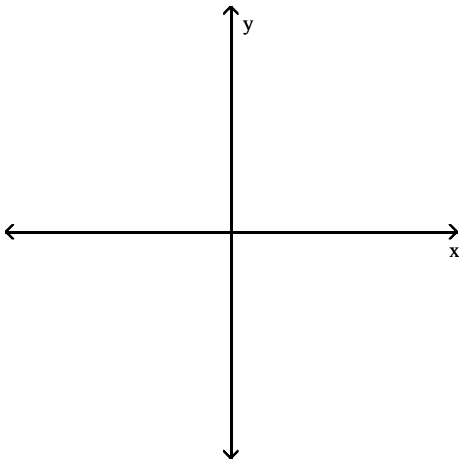


D) quadrant II

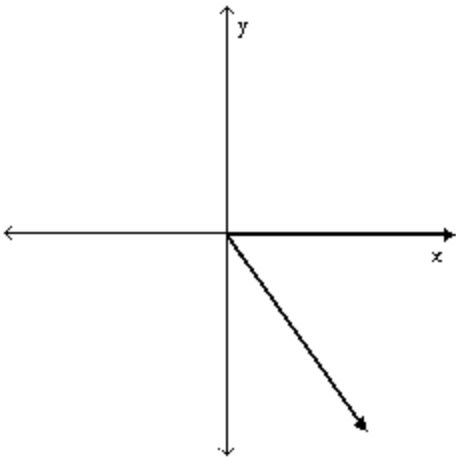


23) 840°

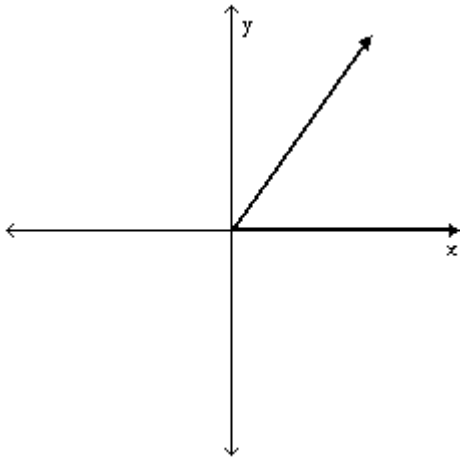
23) _____



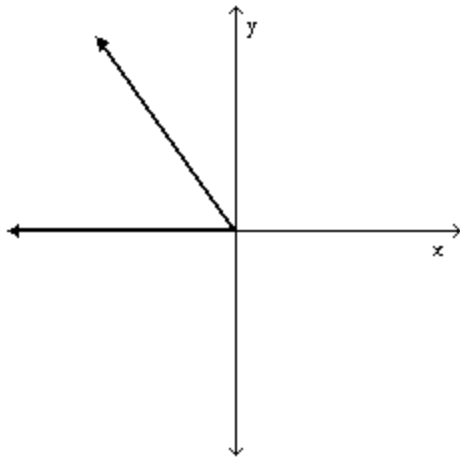
A) quadrant IV



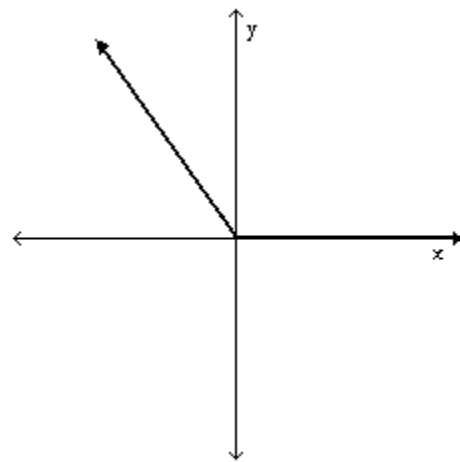
B) quadrant I



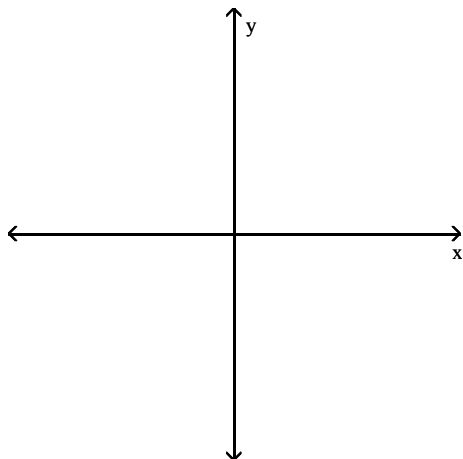
C) quadrant II



D) quadrant II

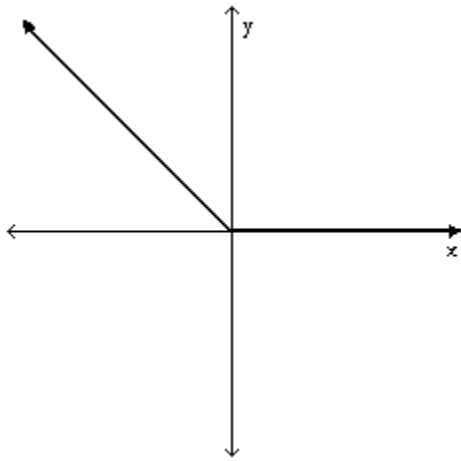


24) 855°

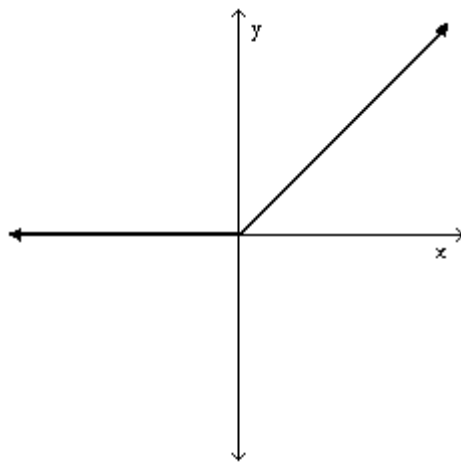


24) _____

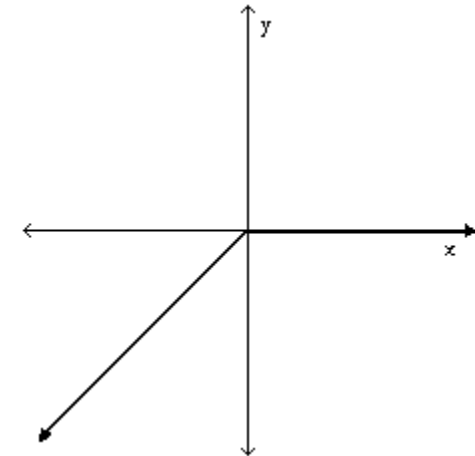
A) quadrant II



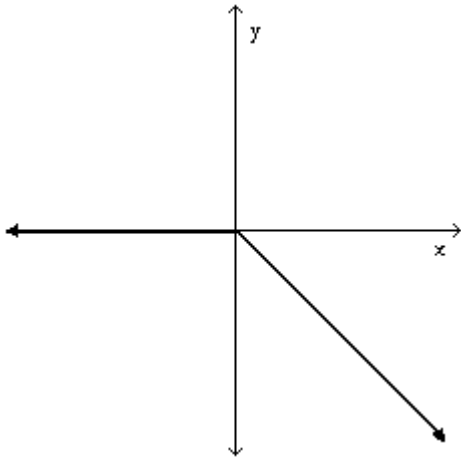
B) quadrant I



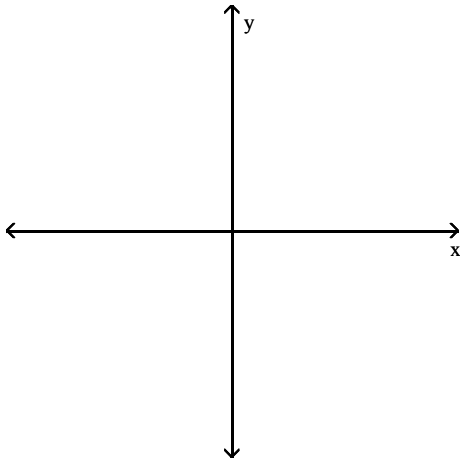
C) quadrant III



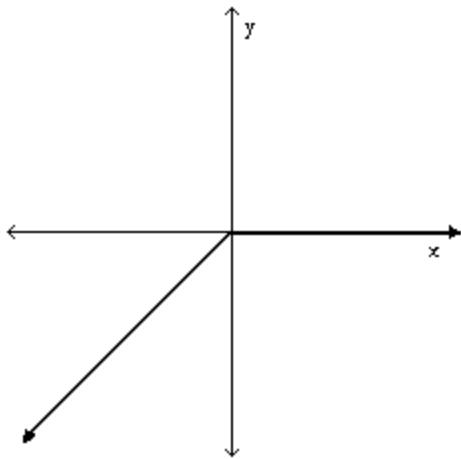
D) quadrant IV



25) 945°

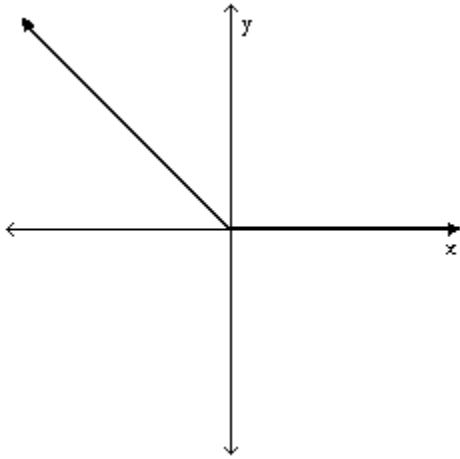


A) quadrant III

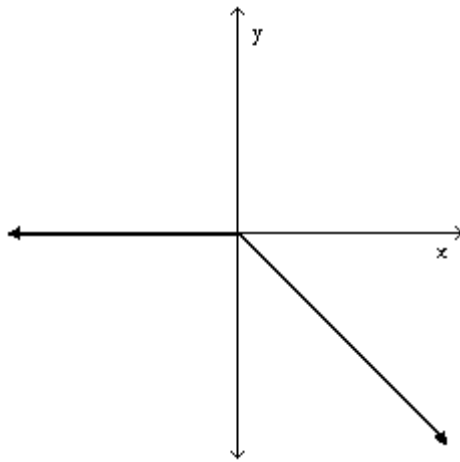


25) _____

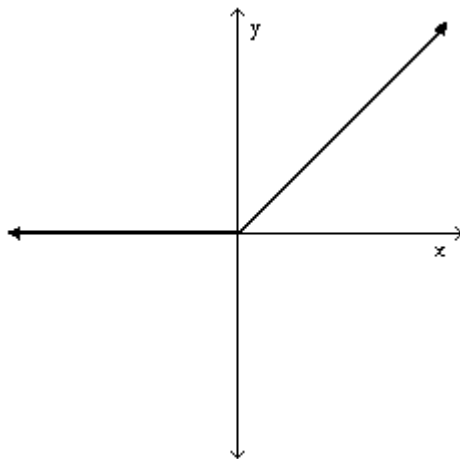
B) quadrant II



C) quadrant IV

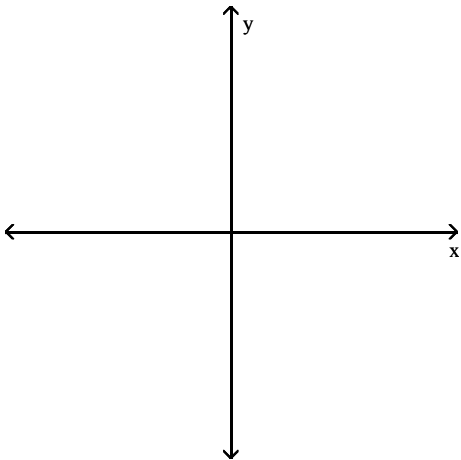


D) quadrant I

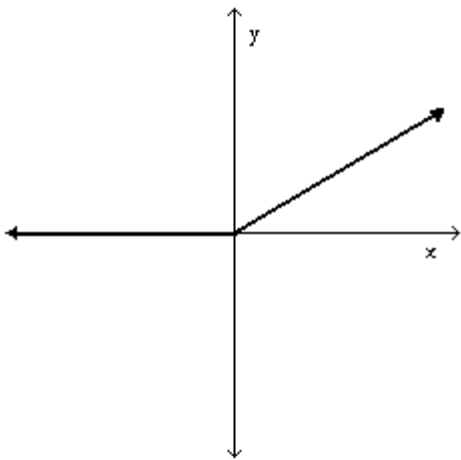


26) -150°

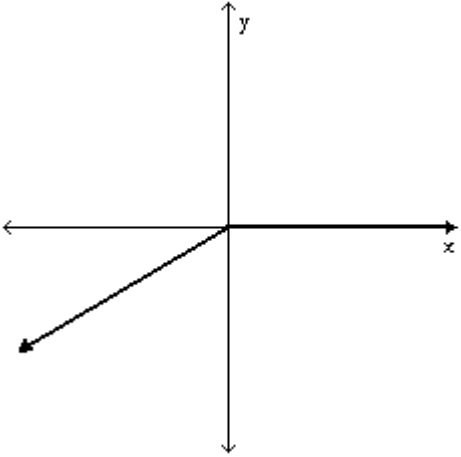
26) _____



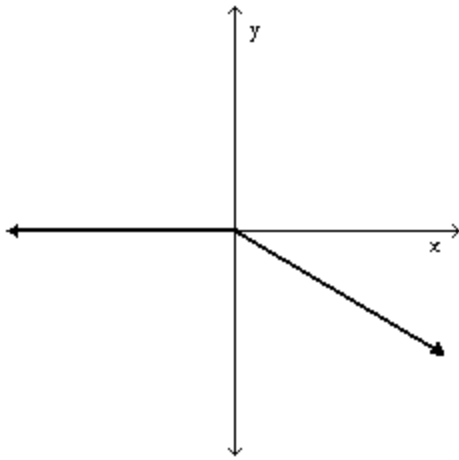
A) quadrant I



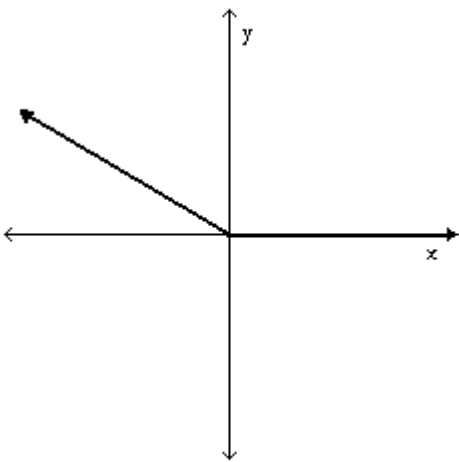
B) quadrant III



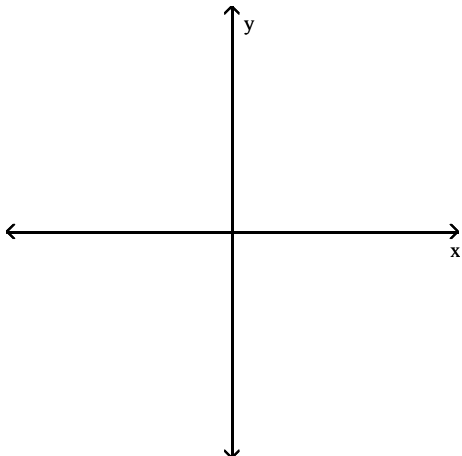
C) quadrant IV



D) quadrant II

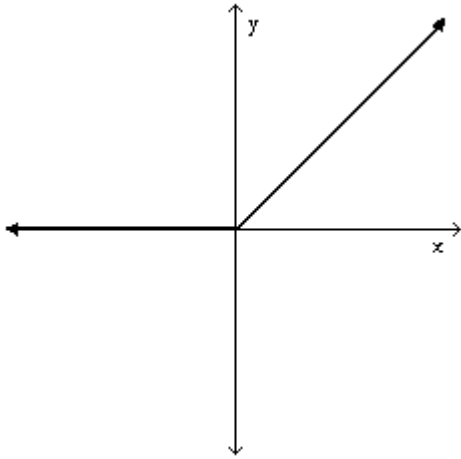


27) -225°

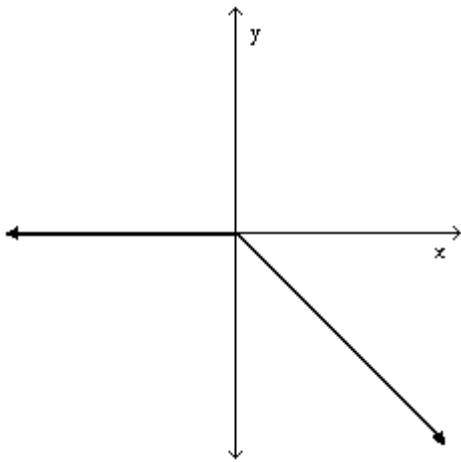


27) _____

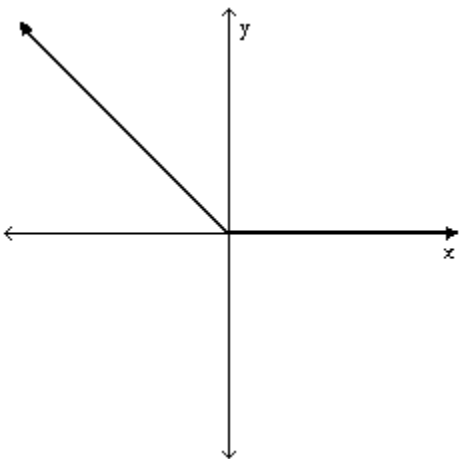
A) quadrant I



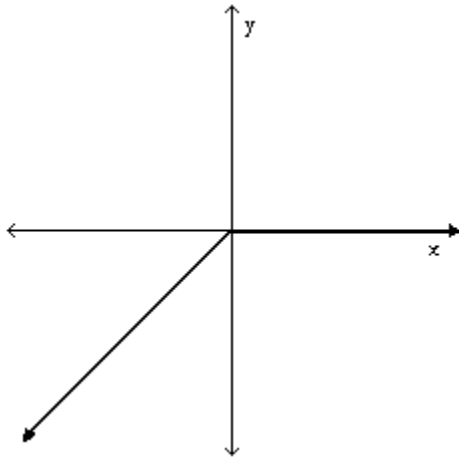
B) quadrant IV



C) quadrant II



D) quadrant III



Find an angle between 0° and 360° that is coterminal with the angle. Then write all coterminal angles.

- 28) 524° 28) _____
 A) 154° ; $154^\circ + n \cdot 360^\circ$, n any integer
 B) 344° ; $344^\circ + n \cdot 360^\circ$, n any integer
 C) 262° ; $262^\circ + n \cdot 360^\circ$, n any integer
 D) 164° ; $164^\circ + n \cdot 360^\circ$, n any integer
- 29) 874° 29) _____
 A) 514° ; $514^\circ + n \cdot 360^\circ$, n any integer
 B) 504° ; $504^\circ + n \cdot 360^\circ$, n any integer
 C) 154° ; $154^\circ + n \cdot 360^\circ$, n any integer
 D) 144° ; $144^\circ + n \cdot 360^\circ$, n any integer
- 30) 1295° 30) _____
 A) 125° ; $125^\circ + n \cdot 360^\circ$, n any integer
 B) 215° ; $215^\circ + n \cdot 360^\circ$, n any integer
 C) 575° ; $575^\circ + n \cdot 360^\circ$, n any integer
 D) 35° ; $35^\circ + n \cdot 360^\circ$, n any integer
- 31) -37° 31) _____
 A) 37° ; $37^\circ + n \cdot 360^\circ$, n any integer
 B) 233° ; $233^\circ + n \cdot 360^\circ$, n any integer
 C) 323° ; $323^\circ + n \cdot 360^\circ$, n any integer
 D) 53° ; $53^\circ + n \cdot 360^\circ$, n any integer
- 32) -58° 32) _____
 A) 122° ; $122^\circ + n \cdot 360^\circ$, n any integer
 B) 302° ; $302^\circ + n \cdot 360^\circ$, n any integer
 C) 482° ; $482^\circ + n \cdot 360^\circ$, n any integer
 D) 58° ; $58^\circ + n \cdot 360^\circ$, n any integer

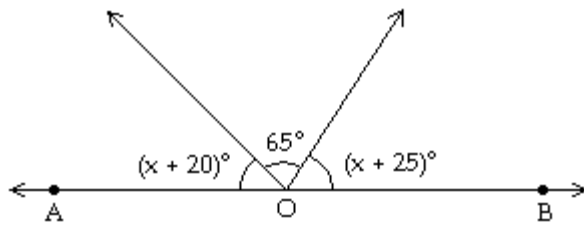
The terminal side of an angle in standard position passes through the given point. Write all possible degree measures of this angle.

- 33) $(-1, 1)$ 33) _____
 A) $225^\circ + n \cdot 360^\circ$, n any integer
 B) $45^\circ + n \cdot 360^\circ$, n any integer
 C) $315^\circ + n \cdot 360^\circ$, n any integer
 D) $135^\circ + n \cdot 360^\circ$, n any integer
- 34) $(-3, 0)$ 34) _____
 A) $0^\circ + n \cdot 360^\circ$, n any integer
 B) $180^\circ + n \cdot 360^\circ$, n any integer
 C) $90^\circ + n \cdot 360^\circ$, n any integer
 D) $270^\circ + n \cdot 360^\circ$, n any integer
- 35) $(0, -3)$ 35) _____
 A) $90^\circ + n \cdot 360^\circ$, n any integer
 B) $180^\circ + n \cdot 360^\circ$, n any integer
 C) $270^\circ + n \cdot 360^\circ$, n any integer
 D) $0^\circ + n \cdot 360^\circ$, n any integer

Solve the problem.

36) In the adjoining figure, AOB is a line. Find the value of x .

36) _____



A) $x = 40$

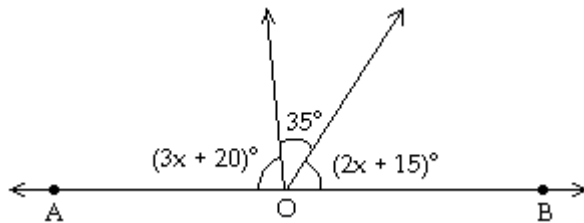
B) $x = 25$

C) $x = 30$

D) $x = 35$

37) In the adjoining figure, AOB is a line. Find the measure of each marked angle.

37) _____



A) $83^\circ, 57^\circ$

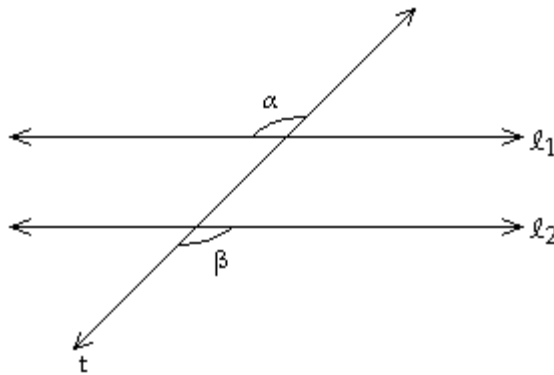
B) $80^\circ, 55^\circ$

C) $158^\circ, 22^\circ$

D) $86^\circ, 59^\circ$

38) In the adjoining figure, ℓ_1 and ℓ_2 are parallel lines and t is a transversal. Assuming that $\alpha = (4x + 5)^\circ$ and $\beta = (3x + 27)^\circ$, find the measures of α and β .

38) _____



A) $\alpha = 69^\circ, \beta = 123^\circ$
C) $\alpha = 123^\circ, \beta = 123^\circ$

B) $\alpha = 106^\circ, \beta = 106^\circ$
D) $\alpha = 106^\circ, \beta = 86^\circ$

Refer to a triangle ABC.

39) If $A = 10^\circ$ and $B = 40^\circ$, find C .

39) _____

A) 40°

B) 310°

C) 130°

D) 50°

40) If $B = 28^\circ$ and $C = 38^\circ$, find A .

40) _____

A) 294°

B) 114°

C) 66°

D) 24°

41) If $A = 27^\circ 23'$ and $C = 69^\circ 18'$, find B .

41) _____

A) $83^\circ 19'$

B) $264^\circ 59'$

C) $84^\circ 19'$

D) $263^\circ 59'$

- 42) If $A = 23.2^\circ$ and $B = 72.5^\circ$, find C . 42) _____
 A) 264.3° B) 54.3° C) 174.3° D) 84.3°
- 43) If $A = 34^\circ$, $B = (x + 61)^\circ$, and $C = (x + 51)^\circ$, find B and C . 43) _____
 A) $B = 39^\circ$, $C = 73^\circ$ B) $B = 68^\circ$, $C = 129^\circ$
 C) $B = 39^\circ$, $C = 78^\circ$ D) $B = 78^\circ$, $C = 68^\circ$
- 44) Find the angles of the triangle ABC assuming that $A = 2x^\circ$, $B = (x + 14)^\circ$, and $C = (x + 110)^\circ$. 44) _____
 A) $A = 14^\circ$, $B = 28^\circ$, $C = 138^\circ$ B) $A = 28^\circ$, $B = 28^\circ$, $C = 124^\circ$
 C) $A = 76^\circ$, $B = 76^\circ$, $C = 28^\circ$ D) $A = 14^\circ$, $B = 28^\circ$, $C = 48^\circ$

Refer to the right triangle ABC with $C = 90^\circ$.

- 45) Assuming that $a = 24$ and $b = 7$, find c . 45) _____
 A) 625 B) 5 C) 20 D) 25
- 46) Assuming that $a = 6$ and $b = 8$, find c . 46) _____
 A) 5 B) 9 C) 10 D) 7
- 47) Assuming that $a = 7$ and $c = 25$, find b . 47) _____
 A) 625 B) 5 C) 20 D) 24
- 48) Assuming that $a = 6$ and $c = 10$, find b . 48) _____
 A) 9 B) 5 C) 7 D) 8

Find the remaining sides of a 45–45–90 triangle from the given information.

- 49) The shorter sides each have length 6. 49) _____
 A) $6\sqrt{2}$ B) 3 C) $6\sqrt{3}$ D) 12
- 50) The shorter sides each have length $\frac{2}{3}$. 50) _____
 A) $\frac{\sqrt{2}}{3}$ B) $\frac{2\sqrt{3}}{3}$ C) $\frac{4}{3}$ D) $\frac{2\sqrt{2}}{3}$
- 51) The hypotenuse has length $6\sqrt{2}$. 51) _____
 A) 3; 3 B) 6; 6 C) 12; 12 D) 6; $6\sqrt{2}$
- 52) The hypotenuse has length 10. 52) _____
 A) $10\sqrt{2}$; $10\sqrt{2}$ B) 5; 5 C) $10\sqrt{3}$; $10\sqrt{3}$ D) $5\sqrt{2}$; $5\sqrt{2}$

Find the remaining sides of a 30–60–90 triangle from the given information.

- 53) The length of the shortest side is 8. 53) _____
 A) 16; $8\sqrt{3}$ B) 16; $16\sqrt{3}$ C) 4; 16 D) 4; $8\sqrt{3}$
- 54) The length opposite the 60° angle is 2. 54) _____
 A) $\frac{\sqrt{3}}{3}$; 4 B) $\frac{\sqrt{3}}{3}$; $\frac{2\sqrt{3}}{3}$ C) $\frac{2\sqrt{3}}{3}$; 4 D) $\frac{2\sqrt{3}}{3}$; $\frac{4\sqrt{3}}{3}$

55) The length of the hypotenuse is 4.

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

B) $2; 4\sqrt{3}$

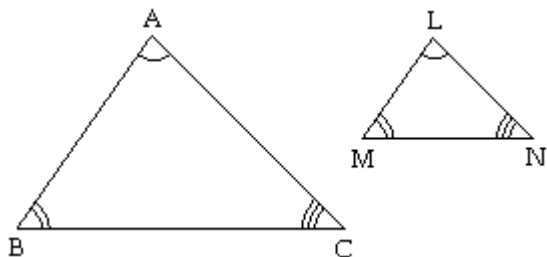
C) $4; 4\sqrt{3}$

D) $4; 2\sqrt{3}$

55) _____

A pair of similar triangles is given. Write the corresponding angles and the ratios of the corresponding sides.

56)



A) $\angle A \cong \angle L$
 $\angle B \cong \angle N$
 $\angle C \cong \angle M$
 $\frac{AB}{LN} = \frac{BC}{MN} = \frac{AC}{LM}$

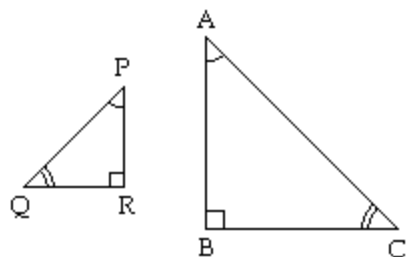
C) $\angle A \cong \angle L$
 $\angle B \cong \angle N$
 $\angle C \cong \angle M$
 $\frac{AB}{LM} = \frac{BC}{MN} = \frac{AC}{LN}$

B) $\angle A \cong \angle L$
 $\angle B \cong \angle M$
 $\angle C \cong \angle N$
 $\frac{AB}{LN} = \frac{BC}{MN} = \frac{AC}{LM}$

D) $\angle A \cong \angle L$
 $\angle B \cong \angle M$
 $\angle C \cong \angle N$
 $\frac{AB}{LM} = \frac{BC}{MN} = \frac{AC}{LN}$

56) _____

57)



A) $\angle A \cong \angle P$
 $\angle B \cong \angle R$
 $\angle C \cong \angle Q$
 $\frac{AB}{PQ} = \frac{BC}{QR} = \frac{AC}{PR}$

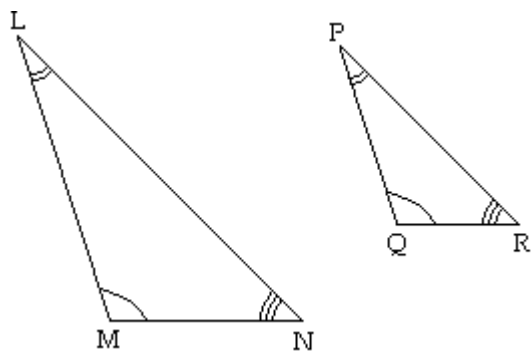
C) $\angle A \cong \angle P$
 $\angle B \cong \angle R$
 $\angle C \cong \angle Q$
 $\frac{AB}{PR} = \frac{BC}{RQ} = \frac{AC}{PQ}$

B) $\angle A \cong \angle P$
 $\angle B \cong \angle Q$
 $\angle C \cong \angle R$
 $\frac{AB}{PQ} = \frac{BC}{QR} = \frac{AC}{PR}$

D) $\angle A \cong \angle P$
 $\angle B \cong \angle Q$
 $\angle C \cong \angle R$
 $\frac{AB}{PR} = \frac{BC}{RQ} = \frac{AC}{PQ}$

57) _____

58)



A) $\angle L \cong \angle P$
 $\angle M \cong \angle Q$
 $\angle N \cong \angle R$
 $\frac{LM}{PR} = \frac{MN}{RQ} = \frac{LN}{PQ}$

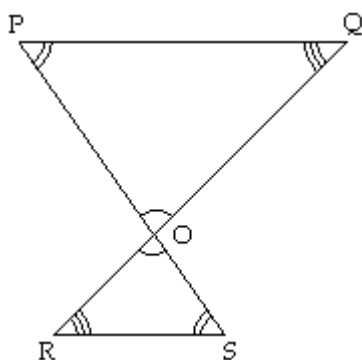
C) $\angle L \cong \angle P$
 $\angle M \cong \angle R$
 $\angle N \cong \angle Q$
 $\frac{LM}{PQ} = \frac{MN}{QR} = \frac{LN}{PR}$

B) $\angle L \cong \angle P$
 $\angle M \cong \angle R$
 $\angle N \cong \angle Q$
 $\frac{LM}{PR} = \frac{MN}{RQ} = \frac{LN}{PQ}$

D) $\angle L \cong \angle P$
 $\angle M \cong \angle Q$
 $\angle N \cong \angle R$
 $\frac{LM}{PQ} = \frac{MN}{QR} = \frac{LN}{PR}$

58) _____

59)



A) $\angle P \cong \angle R$
 $\angle Q \cong \angle S$
 $\angle O \cong \angle O$
 $\frac{PQ}{SR} = \frac{PO}{RO} = \frac{QO}{SO}$

C) $\angle P \cong \angle R$
 $\angle Q \cong \angle S$
 $\angle O \cong \angle O$
 $\frac{PQ}{SR} = \frac{PO}{SO} = \frac{QO}{RO}$

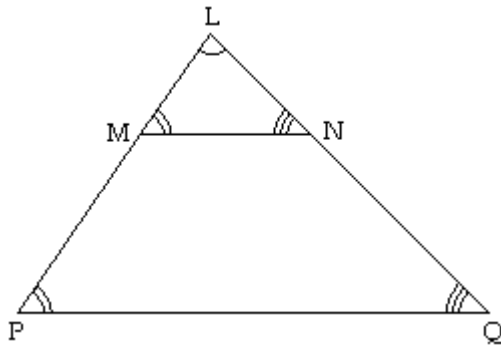
B) $\angle P \cong \angle S$
 $\angle Q \cong \angle R$
 $\angle O \cong \angle O$
 $\frac{PQ}{SR} = \frac{PO}{SO} = \frac{QO}{RO}$

D) $\angle P \cong \angle S$
 $\angle Q \cong \angle R$
 $\angle O \cong \angle O$
 $\frac{PQ}{SR} = \frac{PO}{RO} = \frac{QO}{SO}$

59) _____

60)

60) _____



A) $\angle L \cong \angle L$
 $\angle M \cong \angle P$
 $\angle N \cong \angle Q$
 $\frac{LM}{MP} = \frac{MN}{PQ} = \frac{LN}{NQ}$

C) $\angle L \cong \angle L$
 $\angle M \cong \angle Q$
 $\angle N \cong \angle P$
 $\frac{LM}{MQ} = \frac{MN}{PQ} = \frac{LN}{NP}$

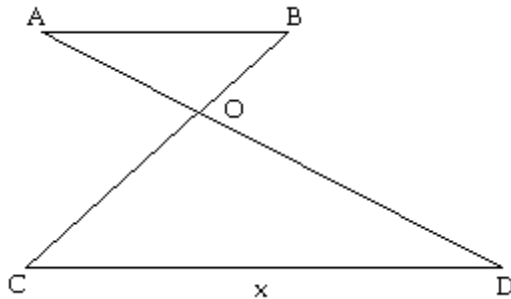
B) $\angle L \cong \angle L$
 $\angle M \cong \angle Q$
 $\angle N \cong \angle P$
 $\frac{LM}{LQ} = \frac{MN}{PQ} = \frac{LN}{LP}$

D) $\angle L \cong \angle L$
 $\angle M \cong \angle P$
 $\angle N \cong \angle Q$
 $\frac{LM}{LP} = \frac{MN}{PQ} = \frac{LN}{LQ}$

Find the length of the unknown segment labeled with the variable x.

61) AB and CD are parallel

61) _____



AB = 5
 AO = 4
 BO = 3
 CO = 6
 DO = 8

A) $x = 10$

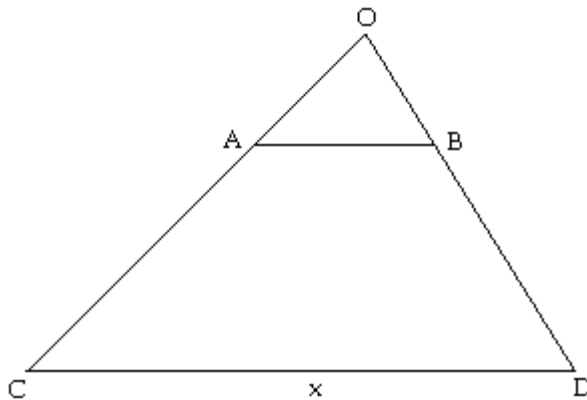
B) $x = 15$

C) $x = 5$

D) $x = 11$

62) AB and CD are parallel

62) _____



AB = 32
 AO = 24
 BO = 16
 CO = 30
 DO = 20

A) $x = 38$

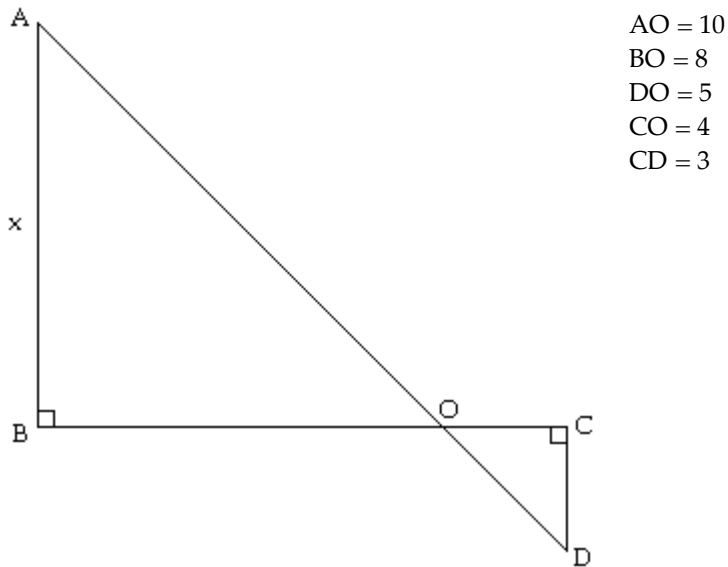
B) $x = 50$

C) $x = 32$

D) $x = 40$

63)

63) _____



A) $x = 6$

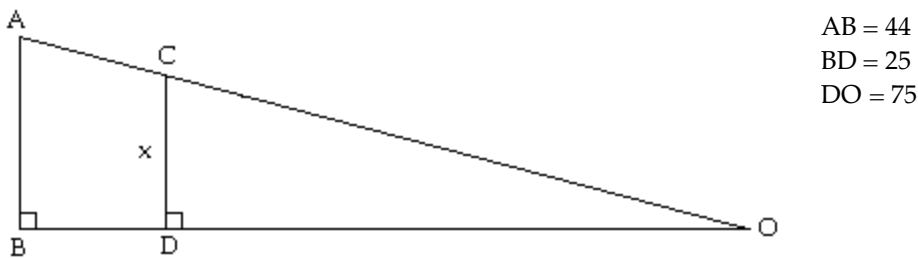
B) $x = 9$

C) $x = 3$

D) $x = 4$

64)

64) _____



A) $x = 44$

B) $x = 33$

C) $x = 22$

D) $x = 11$

Solve the problem. Round to the nearest tenth.

- 65) A flagpole casts a shadow 28 feet long. At the same time, the shadow cast by a 39-inch-tall shrub is 78 inches long. Find the height of the flagpole.

65) _____

A) 56.0 ft

B) 12.5 ft

C) 14.0 ft

D) 54.5 ft

- 66) A building casts a shadow 15 meters long. At the same time, the shadow cast by a 34-centimeter tall pole is 59 centimeters long. How tall is the building?

66) _____

A) 7.1 m

B) 26.0 m

C) 8.6 m

D) 24.5 m

- 67) A triangle drawn on a map has sides of lengths 7 centimeters, 10 centimeters, and 13 centimeters. The shortest of the corresponding real-life distances is 124 kilometers. Find the longest of the real-life distances.

67) _____

A) 177.1 km

B) 167.1 km

C) 230.3 km

D) 240.3 km

The terminal side of θ in standard position contains the given point. Find the values of the six trigonometric functions of θ .

68) (5, 12)

A) $\sin \theta = \frac{12}{13}$

$\cos \theta = \frac{5}{13}$

$\tan \theta = \frac{5}{12}$

$\csc \theta = \frac{13}{12}$

$\sec \theta = \frac{13}{5}$

$\cot \theta = \frac{12}{5}$

B) $\sin \theta = \frac{5}{13}$

$\cos \theta = \frac{12}{13}$

$\tan \theta = \frac{5}{12}$

$\csc \theta = \frac{13}{5}$

$\sec \theta = \frac{13}{12}$

$\cot \theta = \frac{12}{5}$

C) $\sin \theta = \frac{12}{13}$

$\cos \theta = \frac{5}{13}$

$\tan \theta = \frac{12}{5}$

$\csc \theta = \frac{13}{12}$

$\sec \theta = \frac{13}{5}$

$\cot \theta = \frac{5}{12}$

D) $\sin \theta = \frac{5}{13}$

$\cos \theta = \frac{12}{13}$

$\tan \theta = \frac{12}{5}$

$\csc \theta = \frac{13}{5}$

$\sec \theta = \frac{13}{12}$

$\cot \theta = \frac{5}{12}$

68) _____

69) (-7, 24)

A) $\sin \theta = \frac{7}{25}$

$\cos \theta = -\frac{24}{25}$

$\tan \theta = -\frac{24}{7}$

$\csc \theta = \frac{25}{7}$

$\sec \theta = -\frac{25}{24}$

$\cot \theta = -\frac{7}{24}$

B) $\sin \theta = -\frac{24}{25}$

$\cos \theta = \frac{7}{25}$

$\tan \theta = -\frac{24}{7}$

$\csc \theta = -\frac{25}{24}$

$\sec \theta = \frac{25}{7}$

$\cot \theta = -\frac{7}{24}$

C) $\sin \theta = \frac{24}{25}$

$\cos \theta = -\frac{7}{25}$

$\tan \theta = -\frac{24}{7}$

$\csc \theta = \frac{25}{24}$

$\sec \theta = -\frac{25}{7}$

$\cot \theta = -\frac{7}{24}$

D) $\sin \theta = \frac{24}{25}$

$\cos \theta = -\frac{7}{25}$

$\tan \theta = -\frac{7}{24}$

$\csc \theta = \frac{25}{24}$

$\sec \theta = -\frac{25}{7}$

$\cot \theta = -\frac{24}{7}$

69) _____

70) (5, -12)

A) $\sin \theta = -\frac{12}{13}$

$\cos \theta = \frac{5}{13}$

$\tan \theta = -\frac{5}{12}$

$\csc \theta = -\frac{13}{12}$

$\sec \theta = \frac{13}{5}$

$\cot \theta = -\frac{12}{5}$

B) $\sin \theta = -\frac{12}{13}$

$\cos \theta = \frac{5}{13}$

$\tan \theta = -\frac{12}{5}$

$\csc \theta = -\frac{13}{12}$

$\sec \theta = \frac{13}{5}$

$\cot \theta = -\frac{5}{12}$

C) $\sin \theta = -\frac{5}{13}$

$\cos \theta = \frac{12}{13}$

$\tan \theta = -\frac{12}{5}$

$\csc \theta = -\frac{13}{5}$

$\sec \theta = \frac{13}{12}$

$\cot \theta = -\frac{5}{12}$

D) $\sin \theta = \frac{12}{13}$

$\cos \theta = -\frac{5}{13}$

$\tan \theta = -\frac{12}{5}$

$\csc \theta = \frac{13}{12}$

$\sec \theta = -\frac{13}{5}$

$\cot \theta = -\frac{5}{12}$

70) _____

71) $(-4, -3)$

A) $\sin \theta = -\frac{3}{5}$

$\cos \theta = -\frac{4}{5}$

$\tan \theta = \frac{3}{4}$

$\csc \theta = -\frac{5}{3}$

$\sec \theta = -\frac{5}{4}$

$\cot \theta = \frac{4}{3}$

B) $\sin \theta = \frac{3}{5}$

$\cos \theta = -\frac{4}{5}$

$\tan \theta = -\frac{4}{3}$

$\csc \theta = \frac{5}{3}$

$\sec \theta = -\frac{5}{4}$

$\cot \theta = -\frac{3}{4}$

C) $\sin \theta = -\frac{3}{5}$

$\cos \theta = -\frac{4}{5}$

$\tan \theta = -\frac{3}{4}$

$\csc \theta = -\frac{5}{3}$

$\sec \theta = -\frac{5}{4}$

$\cot \theta = -\frac{4}{3}$

D) $\sin \theta = -\frac{3}{5}$

$\cos \theta = \frac{4}{5}$

$\tan \theta = -\frac{4}{3}$

$\csc \theta = -\frac{5}{3}$

$\sec \theta = \frac{5}{4}$

$\cot \theta = -\frac{3}{4}$

71) _____

72) $(5, \sqrt{11})$

A) $\sin \theta = \frac{5}{6}$

$\cos \theta = \frac{\sqrt{11}}{6}$

$\tan \theta = \frac{5\sqrt{11}}{11}$

$\csc \theta = \frac{6}{5}$

$\sec \theta = \frac{6\sqrt{11}}{11}$

$\cot \theta = \frac{\sqrt{11}}{5}$

B) $\sin \theta = \frac{5}{6}$

$\cos \theta = \frac{\sqrt{11}}{6}$

$\tan \theta = \frac{\sqrt{11}}{5}$

$\csc \theta = \frac{6}{5}$

$\sec \theta = \frac{6\sqrt{11}}{11}$

$\cot \theta = \frac{5\sqrt{11}}{11}$

C) $\sin \theta = \frac{\sqrt{11}}{6}$

$\cos \theta = \frac{5}{6}$

$\tan \theta = \frac{\sqrt{11}}{5}$

$\csc \theta = \frac{6\sqrt{11}}{11}$

$\sec \theta = \frac{6}{5}$

$\cot \theta = \frac{5\sqrt{11}}{11}$

D) $\sin \theta = \frac{\sqrt{11}}{6}$

$\cos \theta = \frac{5}{6}$

$\tan \theta = \frac{5\sqrt{11}}{11}$

$\csc \theta = \frac{6\sqrt{11}}{11}$

$\sec \theta = \frac{6}{5}$

$\cot \theta = \frac{\sqrt{11}}{5}$

72) _____

73) $(3, -5)$

A) $\sin \theta = -\frac{3\sqrt{34}}{34}$

$\cos \theta = \frac{5\sqrt{34}}{34}$

$\tan \theta = -\frac{5}{3}$

$\csc \theta = -\frac{\sqrt{34}}{3}$

$\sec \theta = \frac{\sqrt{34}}{5}$

$\cot \theta = -\frac{3}{5}$

B) $\sin \theta = \frac{5\sqrt{34}}{34}$

$\cos \theta = -\frac{3\sqrt{34}}{34}$

$\tan \theta = -\frac{5}{3}$

$\csc \theta = \frac{\sqrt{34}}{5}$

$\sec \theta = -\frac{\sqrt{34}}{3}$

$\cot \theta = -\frac{3}{5}$

C) $\sin \theta = \frac{3\sqrt{34}}{34}$

$\cos \theta = -\frac{5\sqrt{34}}{34}$

$\tan \theta = -\frac{5}{3}$

$\csc \theta = \frac{\sqrt{34}}{3}$

$\sec \theta = -\frac{\sqrt{34}}{5}$

$\cot \theta = -\frac{3}{5}$

D) $\sin \theta = -\frac{5\sqrt{34}}{34}$

$\cos \theta = \frac{3\sqrt{34}}{34}$

$\tan \theta = -\frac{5}{3}$

$\csc \theta = -\frac{\sqrt{34}}{5}$

$\sec \theta = \frac{\sqrt{34}}{3}$

$\cot \theta = -\frac{3}{5}$

73) _____

Find the exact value. If any are not defined, write undefined.74) $\tan(-180^\circ)$

A) Undefined

B) 0

C) -1

D) 1

74) _____

75) $\sin 450^\circ$ _____

A) Undefined B) 1 C) $\frac{1}{2}$ D) 0

76) $\cot(-90^\circ)$ _____

A) $\frac{\sqrt{2}}{2}$ B) Undefined C) 0 D) -1

77) $\cot 270^\circ$ _____

A) Undefined B) $\frac{\sqrt{2}}{2}$ C) 0 D) -1

78) $\sin 90^\circ$ _____

A) 0 B) Undefined C) $\frac{1}{2}$ D) 1

79) $\cos(-540^\circ)$ _____

A) 0 B) -1 C) 1 D) Undefined

Find the exact value of the expression.

80) $\tan 45^\circ - \sin 60^\circ$ _____

A) $\frac{2 - \sqrt{2}}{2}$ B) $\frac{2\sqrt{3} - 3\sqrt{2}}{6}$ C) $\frac{2 - \sqrt{3}}{2}$ D) $-\frac{\sqrt{3}}{6}$

81) $\tan 30^\circ - \sin 45^\circ$ _____

A) $\frac{2 - \sqrt{2}}{2}$ B) $\frac{2\sqrt{2} - 3\sqrt{3}}{6}$ C) $\frac{2 - \sqrt{3}}{2}$ D) $\frac{2\sqrt{3} - 3\sqrt{2}}{6}$

82) $\cos 60^\circ + \tan 60^\circ$ _____

A) $\frac{1 + \sqrt{3}}{2}$ B) $\frac{3\sqrt{3}}{2}$ C) $\frac{1 + 2\sqrt{3}}{2}$ D) $2\sqrt{3}$

83) $\sin 60^\circ - \cos 30^\circ$ _____

A) $\sqrt{3}$ B) $\frac{\sqrt{3} - 1}{2}$ C) 1 D) 0

Use the given information to find the quadrant in which θ lies.

84) $\tan \theta > 0$ and $\sin \theta < 0$ _____

A) Quadrant II B) Quadrant III C) Quadrant IV D) Quadrant I

85) $\cos \theta < 0$ and $\csc \theta < 0$ _____

A) Quadrant I B) Quadrant III C) Quadrant II D) Quadrant IV

86) $\sin \theta > 0$ and $\cos \theta < 0$ _____

A) Quadrant IV B) Quadrant II C) Quadrant III D) Quadrant I

- | | | | | |
|---|-----------------|----------------|-----------------|-----------|
| 87) $\cot \theta < 0$ and $\cos \theta > 0$
A) Quadrant II | B) Quadrant III | C) Quadrant IV | D) Quadrant I | 87) _____ |
| 88) $\csc \theta > 0$ and $\sec \theta > 0$
A) Quadrant IV | B) Quadrant III | C) Quadrant II | D) Quadrant I | 88) _____ |
| 89) $\sec \theta < 0$ and $\tan \theta < 0$
A) Quadrant I | B) Quadrant IV | C) Quadrant II | D) Quadrant III | 89) _____ |
| 90) $\tan \theta < 0$ and $\sin \theta < 0$
A) Quadrant I | B) Quadrant II | C) Quadrant IV | D) Quadrant III | 90) _____ |
| 91) $\cos \theta > 0$ and $\csc \theta < 0$
A) Quadrant I | B) Quadrant IV | C) Quadrant II | D) Quadrant III | 91) _____ |
| 92) $\cot \theta > 0$ and $\sin \theta < 0$
A) Quadrant II | B) Quadrant I | C) Quadrant IV | D) Quadrant III | 92) _____ |
| 93) $\sin \theta > 0$ and $\cos \theta > 0$
A) Quadrant II | B) Quadrant III | C) Quadrant IV | D) Quadrant I | 93) _____ |

Find the exact values of the remaining trigonometric functions of θ from the given information.

- | | | | | |
|--|----------------------------------|----------------------------------|----------------------------------|-----------|
| 94) $\sin \theta = -\frac{7}{25}$, θ in quadrant III | | | | 94) _____ |
| A) $\sin \theta = -\frac{7}{25}$ | B) $\sin \theta = -\frac{7}{25}$ | C) $\sin \theta = -\frac{7}{25}$ | D) $\sin \theta = -\frac{7}{25}$ | |
| $\cos \theta = -\frac{24}{25}$ | $\cos \theta = \frac{24}{25}$ | $\cos \theta = -\frac{24}{25}$ | $\cos \theta = -\frac{24}{25}$ | |
| $\tan \theta = -\frac{24}{7}$ | $\tan \theta = -\frac{24}{7}$ | $\tan \theta = \frac{7}{24}$ | $\tan \theta = -\frac{7}{24}$ | |
| $\csc \theta = \frac{25}{7}$ | $\csc \theta = -\frac{25}{7}$ | $\csc \theta = -\frac{25}{7}$ | $\csc \theta = -\frac{25}{7}$ | |
| $\sec \theta = -\frac{25}{24}$ | $\sec \theta = \frac{25}{24}$ | $\sec \theta = -\frac{25}{24}$ | $\sec \theta = -\frac{25}{24}$ | |
| $\cot \theta = -\frac{7}{24}$ | $\cot \theta = -\frac{7}{24}$ | $\cot \theta = \frac{24}{7}$ | $\cot \theta = -\frac{24}{7}$ | |

95) $\tan \theta = -\frac{12}{5}$, θ in quadrant II

95) _____

A) $\sin \theta = \frac{5}{13}$

B) $\sin \theta = \frac{12}{13}$

C) $\sin \theta = \frac{12}{13}$

D) $\sin \theta = -\frac{12}{13}$

$\cos \theta = -\frac{12}{13}$

$\cos \theta = -\frac{5}{13}$

$\cos \theta = -\frac{5}{13}$

$\cos \theta = \frac{5}{13}$

$\tan \theta = -\frac{12}{5}$

$\tan \theta = -\frac{12}{5}$

$\tan \theta = -\frac{12}{5}$

$\tan \theta = -\frac{12}{5}$

$\csc \theta = \frac{13}{5}$

$\csc \theta = \frac{13}{12}$

$\csc \theta = \frac{13}{12}$

$\csc \theta = -\frac{13}{12}$

$\sec \theta = -\frac{13}{12}$

$\sec \theta = -\frac{13}{5}$

$\sec \theta = -\frac{13}{5}$

$\sec \theta = \frac{13}{5}$

$\cot \theta = -\frac{5}{12}$

$\cot \theta = -\frac{5}{12}$

$\cot \theta = -\frac{12}{5}$

$\cot \theta = -\frac{5}{12}$

96) $\cot \theta = -\frac{4}{3}$, θ in quadrant IV

96) _____

A) $\sin \theta = -\frac{4}{5}$

B) $\sin \theta = -\frac{3}{5}$

C) $\sin \theta = -\frac{3}{5}$

D) $\sin \theta = \frac{3}{5}$

$\cos \theta = \frac{3}{5}$

$\cos \theta = \frac{4}{5}$

$\cos \theta = \frac{4}{5}$

$\cos \theta = -\frac{4}{5}$

$\tan \theta = -\frac{3}{4}$

$\tan \theta = -\frac{3}{4}$

$\tan \theta = -\frac{4}{3}$

$\tan \theta = -\frac{3}{4}$

$\csc \theta = -\frac{5}{4}$

$\csc \theta = -\frac{5}{3}$

$\csc \theta = -\frac{5}{3}$

$\csc \theta = \frac{5}{3}$

$\sec \theta = \frac{5}{3}$

$\sec \theta = \frac{5}{4}$

$\sec \theta = \frac{5}{4}$

$\sec \theta = -\frac{5}{4}$

$\cot \theta = -\frac{4}{3}$

$\cot \theta = -\frac{4}{3}$

$\cot \theta = -\frac{4}{3}$

$\cot \theta = -\frac{4}{3}$

97) $\csc \theta = \frac{8}{\sqrt{55}}$, θ in quadrant II

97) _____

A) $\sin \theta = \frac{3}{8}$

B) $\sin \theta = \frac{\sqrt{55}}{8}$

C) $\sin \theta = -\frac{\sqrt{55}}{8}$

D) $\sin \theta = \frac{\sqrt{55}}{8}$

$\cos \theta = -\frac{\sqrt{55}}{8}$

$\cos \theta = -\frac{3}{8}$

$\cos \theta = \frac{3}{8}$

$\cos \theta = -\frac{3}{8}$

$\tan \theta = -\frac{\sqrt{55}}{3}$

$\tan \theta = -\frac{3\sqrt{55}}{55}$

$\tan \theta = -\frac{\sqrt{55}}{3}$

$\tan \theta = -\frac{\sqrt{55}}{3}$

$\csc \theta = \frac{8\sqrt{55}}{55}$

$\csc \theta = \frac{8\sqrt{55}}{55}$

$\csc \theta = \frac{8\sqrt{55}}{55}$

$\csc \theta = \frac{8\sqrt{55}}{55}$

$\sec \theta = -\frac{8\sqrt{55}}{55}$

$\sec \theta = -\frac{8}{3}$

$\sec \theta = \frac{8}{3}$

$\sec \theta = -\frac{8}{3}$

$\cot \theta = -\frac{3\sqrt{55}}{55}$

$\cot \theta = -\frac{\sqrt{55}}{3}$

$\cot \theta = -\frac{3\sqrt{55}}{55}$

$\cot \theta = -\frac{3\sqrt{55}}{55}$

98) $\cos \theta = \frac{5}{13}, \sin \theta < 0$

98) _____

A) $\sin \theta = -\frac{12}{13}$

B) $\sin \theta = -\frac{5}{13}$

C) $\sin \theta = -\frac{12}{13}$

D) $\sin \theta = \frac{12}{13}$

$\cos \theta = \frac{5}{13}$

$\cos \theta = \frac{5}{13}$

$\cos \theta = \frac{5}{13}$

$\cos \theta = \frac{5}{13}$

$\tan \theta = -\frac{5}{12}$

$\tan \theta = -\frac{12}{5}$

$\tan \theta = -\frac{12}{5}$

$\tan \theta = -\frac{12}{5}$

$\csc \theta = -\frac{13}{12}$

$\csc \theta = -\frac{13}{5}$

$\csc \theta = -\frac{13}{12}$

$\csc \theta = \frac{13}{12}$

$\sec \theta = \frac{13}{5}$

$\sec \theta = \frac{13}{12}$

$\sec \theta = \frac{13}{5}$

$\sec \theta = -\frac{13}{5}$

$\cot \theta = -\frac{12}{5}$

$\cot \theta = -\frac{5}{12}$

$\cot \theta = -\frac{5}{12}$

$\cot \theta = -\frac{5}{12}$

99) $\sec \theta = -\frac{13}{5}, \tan \theta > 0$

99) _____

A) $\sin \theta = -\frac{12}{13}$

B) $\sin \theta = -\frac{12}{13}$

C) $\sin \theta = \frac{12}{13}$

D) $\sin \theta = -\frac{12}{13}$

$\cos \theta = \frac{5}{13}$

$\cos \theta = -\frac{5}{13}$

$\cos \theta = -\frac{5}{13}$

$\cos \theta = -\frac{5}{13}$

$\tan \theta = -\frac{5}{12}$

$\tan \theta = -\frac{12}{5}$

$\tan \theta = -\frac{5}{12}$

$\tan \theta = \frac{12}{5}$

$\csc \theta = -\frac{13}{12}$

$\csc \theta = -\frac{13}{12}$

$\csc \theta = \frac{13}{12}$

$\csc \theta = -\frac{13}{12}$

$\sec \theta = -\frac{13}{5}$

$\sec \theta = -\frac{13}{5}$

$\sec \theta = -\frac{13}{5}$

$\sec \theta = -\frac{13}{5}$

$\cot \theta = -\frac{12}{5}$

$\cot \theta = -\frac{5}{12}$

$\cot \theta = -\frac{12}{5}$

$\cot \theta = \frac{5}{12}$

Solve the problem. If necessary, round to the nearest tenth.

- 100) The force acting on a pendulum to bring it to its perpendicular resting point is called the restoring force. The restoring force F , in Newtons, acting on a string pendulum is given by the formula

100) _____

$F = mg \sin \theta$

where m is the mass in kilograms of the pendulum's bob, $g \approx 9.8$ meters per second per second is the acceleration due to gravity, and θ is angle at which the pendulum is displaced from the perpendicular. What is the value of the restoring force when $m = 0.6$ kilogram and $\theta = 30^\circ$?

A) 5.1 N

B) 2.7 N

C) 5.8 N

D) 2.9 N

- 101) The force acting on a pendulum to bring it to its perpendicular resting point is called the restoring force. The restoring force F , in Newtons, acting on a string pendulum is given by the formula

101) _____

$F = mg \sin \theta$

where m is the mass in kilograms of the pendulum's bob, $g \approx 9.8$ meters per second per second is the acceleration due to gravity, and θ is angle at which the pendulum is displaced from the perpendicular. What is the value of the restoring force when $m = 0.5$ kilogram and $\theta = 45^\circ$?

A) 3.4 N

B) 3.5 N

C) 4.2 N

D) 3.3 N

- 102) If friction is ignored, the time t (in seconds) required for a block to slide down an inclined plane is given by the formula 102) _____

$$t = \sqrt{\frac{2a}{g \sin \theta \cos \theta}}$$

where a is the length (in feet) of the base and $g \approx 32$ feet per second per second is the acceleration of gravity. How long does it take a block to slide down an inclined plane with base $a = 11$ when $\theta = 60^\circ$?

- A) 1.3 sec B) 1.5 sec C) 1.1 sec D) 0.3 sec

- 103) If friction is ignored, the time t (in seconds) required for a block to slide down an inclined plane is given by the formula 103) _____

$$t = \sqrt{\frac{2a}{g \sin \theta \cos \theta}}$$

where a is the length (in feet) of the base and $g \approx 32$ feet per second per second is the acceleration of gravity. How long does it take a block to slide down an inclined plane with base $a = 10$ when $\theta = 45^\circ$?

- A) 0.3 sec B) 1.1 sec C) 0.9 sec D) 1.2 sec

Write the reference angle for the given angle.

- 104) 66° 104) _____
A) 66° B) 156° C) 114° D) 24°

- 105) 101° 105) _____
A) 79° B) 21° C) 11° D) 89°

- 106) 373° 106) _____
A) 103° B) 13° C) 167° D) 77°

- 107) -437° 107) _____
A) 77° B) 103° C) 167° D) 13°

- 108) 510° 108) _____
A) 60° B) 30° C) 90° D) 45°

- 109) 240° 109) _____
A) 45° B) 60° C) -60° D) 30°

- 110) 675° 110) _____
A) 45° B) 60° C) 30° D) 90°

Find the exact value of the expression.

- 111) $\sin 225^\circ$ 111) _____
A) $\frac{\sqrt{3}}{2}$ B) $\frac{\sqrt{2}}{2}$ C) $\frac{1}{2}$ D) $-\frac{\sqrt{2}}{2}$

- 112) $\cos 240^\circ$ 112) _____
A) $\frac{\sqrt{2}}{2}$ B) $\frac{1}{2}$ C) $-\frac{\sqrt{3}}{2}$ D) $-\frac{1}{2}$

113) $\tan 135^\circ$ A) -1	B) $-\sqrt{2}$	C) 1	D) $\sqrt{2}$	113) _____
114) $\cot 240^\circ$ A) 1	B) -2	C) $\frac{\sqrt{3}}{3}$	D) $-\frac{2\sqrt{3}}{3}$	114) _____
115) $\sec 150^\circ$ A) $\frac{\sqrt{3}}{2}$	B) $-\frac{\sqrt{3}}{2}$	C) $\frac{2\sqrt{3}}{3}$	D) $-\frac{2\sqrt{3}}{3}$	115) _____
116) $\csc 90^\circ$ A) -1	B) 1	C) -2	D) 2	116) _____
117) $\sin 2835^\circ$ A) $-\frac{1}{2}$	B) $-\frac{\sqrt{3}}{2}$	C) $2\sqrt{3}$	D) $-\frac{\sqrt{2}}{2}$	117) _____
118) $\sin (-2100^\circ)$ A) $\frac{1}{2}$	B) $\frac{\sqrt{2}}{2}$	C) $\frac{\sqrt{3}}{2}$	D) -1	118) _____
119) $\cos 1680^\circ$ A) $-\frac{\sqrt{3}}{2}$	B) $\frac{\sqrt{2}}{2}$	C) $-\sqrt{3}$	D) $-\frac{1}{2}$	119) _____
120) $\cos (-1050^\circ)$ A) $-\frac{\sqrt{3}}{2}$	B) $\frac{\sqrt{3}}{2}$	C) $\frac{1}{2}$	D) $-\frac{1}{2}$	120) _____
121) $\tan 870^\circ$ A) $\frac{\sqrt{2}}{2}$	B) $-\frac{\sqrt{3}}{3}$	C) $-\sqrt{3}$	D) 1	121) _____
122) $\cot (-315^\circ)$ A) $\sqrt{3}$	B) $\frac{\sqrt{3}}{3}$	C) -1	D) 1	122) _____
123) $\csc 480^\circ$ A) $-\frac{\sqrt{3}}{3}$	B) -2	C) $\sqrt{2}$	D) $\frac{2\sqrt{3}}{3}$	123) _____
124) $\csc (-2400^\circ)$ A) -2	B) $-\frac{\sqrt{3}}{3}$	C) $\frac{2\sqrt{3}}{3}$	D) $\sqrt{2}$	124) _____

125) $\sec 1305^\circ$ 125) _____
 A) $-\sqrt{2}$ B) $\frac{\sqrt{2}}{2}$ C) 2 D) $\frac{2\sqrt{3}}{3}$

126) $\sec (-495^\circ)$ 126) _____
 A) $-\frac{\sqrt{3}}{3}$ B) -1 C) $\frac{\sqrt{2}}{2}$ D) $-\sqrt{2}$

Find possible value(s) of θ in the interval $[0^\circ, 360^\circ)$ with the given trigonometric function value.

127) $\cos \theta = \frac{1}{2}$ 127) _____
 A) $150^\circ; 210^\circ$ B) $60^\circ; 120^\circ$ C) $60^\circ; 300^\circ$ D) $210^\circ; 330^\circ$

128) $\sin \theta = \frac{\sqrt{3}}{2}$ 128) _____
 A) $60^\circ; 300^\circ$ B) $150^\circ; 210^\circ$ C) $60^\circ; 120^\circ$ D) $210^\circ; 330^\circ$

129) $\sin \theta = -\frac{1}{2}$ 129) _____
 A) $60^\circ; 300^\circ$ B) $60^\circ; 120^\circ$ C) $210^\circ; 330^\circ$ D) $150^\circ; 210^\circ$

130) $\cos \theta = -\frac{\sqrt{3}}{2}$ 130) _____
 A) $60^\circ; 120^\circ$ B) $60^\circ; 300^\circ$ C) $210^\circ; 330^\circ$ D) $150^\circ; 210^\circ$

131) $\sec \theta$ is undefined 131) _____
 A) 0° B) 90° C) $0^\circ; 180^\circ$ D) $90^\circ; 270^\circ$

132) $\cos \theta = \frac{\sqrt{3}}{2}$ 132) _____
 A) $225^\circ; 315^\circ$ B) $30^\circ; 330^\circ$ C) $45^\circ; 225^\circ$ D) $135^\circ; 225^\circ$

133) $\sec \theta = -\sqrt{2}$ 133) _____
 A) $135^\circ; 225^\circ$ B) $45^\circ; 315^\circ$ C) $45^\circ; 225^\circ$ D) $225^\circ; 315^\circ$

134) $\sin \theta = -\frac{\sqrt{2}}{2}$ 134) _____
 A) $135^\circ; 225^\circ$ B) $45^\circ; 225^\circ$ C) $225^\circ; 315^\circ$ D) $45^\circ; 315^\circ$

135) $\tan \theta = 1$ 135) _____
 A) $45^\circ; 225^\circ$ B) $225^\circ; 315^\circ$ C) $135^\circ; 225^\circ$ D) $45^\circ; 315^\circ$

136) $\cot \theta = 1$ 136) _____
 A) $45^\circ; 225^\circ$ B) $225^\circ; 315^\circ$ C) $135^\circ; 225^\circ$ D) $45^\circ; 315^\circ$

Find all values of θ with the given trigonometric function value.

137) $\cos \theta = \frac{1}{2}$ 137) _____

- A) $60^\circ + n \cdot 360^\circ$; $120^\circ + n \cdot 360^\circ$, n any integer
- B) $60^\circ + n \cdot 360^\circ$; $300^\circ + n \cdot 360^\circ$, n any integer
- C) $210^\circ + n \cdot 360^\circ$; $330^\circ + n \cdot 360^\circ$, n any integer
- D) $150^\circ + n \cdot 360^\circ$; $210^\circ + n \cdot 360^\circ$, n any integer

138) $\tan \theta = 1$ 138) _____

- A) $135^\circ + n \cdot 360^\circ$; $225^\circ + n \cdot 360^\circ$, n any integer
- B) $45^\circ + n \cdot 360^\circ$; $225^\circ + n \cdot 360^\circ$, n any integer
- C) $45^\circ + n \cdot 360^\circ$; $315^\circ + n \cdot 360^\circ$, n any integer
- D) $225^\circ + n \cdot 360^\circ$; $315^\circ + n \cdot 360^\circ$, n any integer

139) $\cos \theta = -\frac{\sqrt{3}}{2}$ 139) _____

- A) $210^\circ + n \cdot 360^\circ$; $330^\circ + n \cdot 360^\circ$, n any integer
- B) $60^\circ + n \cdot 360^\circ$; $120^\circ + n \cdot 360^\circ$, n any integer
- C) $60^\circ + n \cdot 360^\circ$; $300^\circ + n \cdot 360^\circ$, n any integer
- D) $150^\circ + n \cdot 360^\circ$; $210^\circ + n \cdot 360^\circ$, n any integer

140) $\sin \theta = -\frac{1}{2}$ 140) _____

- A) $150^\circ + n \cdot 360^\circ$; $210^\circ + n \cdot 360^\circ$, n any integer
- B) $210^\circ + n \cdot 360^\circ$; $330^\circ + n \cdot 360^\circ$, n any integer
- C) $60^\circ + n \cdot 360^\circ$; $300^\circ + n \cdot 360^\circ$, n any integer
- D) $60^\circ + n \cdot 360^\circ$; $120^\circ + n \cdot 360^\circ$, n any integer

141) $\sec \theta = -\sqrt{2}$ 141) _____

- A) $45^\circ + n \cdot 360^\circ$; $225^\circ + n \cdot 360^\circ$, n any integer
- B) $135^\circ + n \cdot 360^\circ$; $225^\circ + n \cdot 360^\circ$, n any integer
- C) $225^\circ + n \cdot 360^\circ$; $315^\circ + n \cdot 360^\circ$, n any integer
- D) $45^\circ + n \cdot 360^\circ$; $315^\circ + n \cdot 360^\circ$, n any integer

142) $\sin \theta = -\frac{\sqrt{2}}{2}$ 142) _____

- A) $45^\circ + n \cdot 360^\circ$; $315^\circ + n \cdot 360^\circ$, n any integer
- B) $135^\circ + n \cdot 360^\circ$; $225^\circ + n \cdot 360^\circ$, n any integer
- C) $225^\circ + n \cdot 360^\circ$; $315^\circ + n \cdot 360^\circ$, n any integer
- D) $45^\circ + n \cdot 360^\circ$; $225^\circ + n \cdot 360^\circ$, n any integer

Find the value of θ in the interval $[0^\circ, 360^\circ)$ that satisfies the given conditions.

143) $\sin \theta = -\frac{1}{2}$ and θ in quadrant IV 143) _____

- A) 330°
- B) 210°
- C) 240°
- D) 300°

144) $\sin \theta = -\frac{1}{2}$ and θ in quadrant III 144) _____

- A) 210°
- B) 330°
- C) 240°
- D) 300°

- 145) $\cos \theta = -\frac{\sqrt{3}}{2}$ and θ in quadrant II 145) _____
 A) 120° B) 150° C) 240° D) 210°
- 146) $\cos \theta = -\frac{\sqrt{3}}{2}$ and θ in quadrant III 146) _____
 A) 120° B) 150° C) 210° D) 240°
- 147) $\sec \theta = -\sqrt{2}$ and θ in quadrant III 147) _____
 A) 45° B) 315° C) 135° D) 225°
- 148) $\sec \theta = -\sqrt{2}$ and θ in quadrant II 148) _____
 A) 315° B) 225° C) 45° D) 135°
- 149) $\sin \theta = -\frac{\sqrt{2}}{2}$ and θ in quadrant III 149) _____
 A) 135° B) 45° C) 315° D) 225°
- 150) $\sin \theta = -\frac{\sqrt{2}}{2}$ and θ in quadrant IV 150) _____
 A) 45° B) 135° C) 315° D) 225°
- 151) $\tan \theta = \frac{\sqrt{3}}{3}$ and θ in quadrant III 151) _____
 A) 210° B) 120° C) 240° D) 150°
- 152) $\sin \theta = \frac{\sqrt{3}}{2}$ and θ in quadrant II 152) _____
 A) 60° B) 150° C) 120° D) 240°

Use the reciprocal identities to find the indicated function value.

- 153) $\sin \alpha = -\frac{1}{3}$, find $\csc \alpha$ 153) _____
 A) $\frac{1}{3}$ B) -3 C) 3 D) $-\frac{1}{3}$
- 154) $\cos \beta = \frac{1}{10}$, find $\sec \beta$ 154) _____
 A) $-\frac{1}{10}$ B) 10 C) $\frac{1}{10}$ D) -10
- 155) $\sec \theta = -3$, find $\cos \theta$ 155) _____
 A) $\frac{1}{3}$ B) $-\frac{1}{2}$ C) $-\frac{1}{3}$ D) $\frac{1}{2}$

156) $\csc \alpha = 7$, find $\sin \alpha$

A) $\frac{1}{6}$

B) $\frac{1}{7}$

C) $-\frac{1}{7}$

D) $-\frac{1}{6}$

156) _____

157) $\tan \beta = \frac{3}{4}$, find $\cot \beta$

A) $\frac{7}{4}$

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

C) $-\frac{4}{3}$

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

157) _____

158) $\cot \theta = -\frac{10}{11}$, find $\tan \theta$

A) $-\frac{10}{11}$

B) $\frac{11}{10}$

C) $\frac{21}{11}$

D) $-\frac{11}{10}$

158) _____

Use quotient identities to find the indicated function value.

159) $\sin \theta = -\frac{5}{13}$, $\cos \theta = \frac{12}{13}$; find $\tan \theta$

A) $\frac{5}{12}$

B) $\frac{12}{5}$

C) $-\frac{5}{12}$

D) $-\frac{12}{5}$

159) _____

160) $\sin \alpha = \frac{12}{13}$, $\cos \alpha = -\frac{5}{13}$; find $\cot \alpha$

A) $\frac{5}{12}$

B) $-\frac{12}{5}$

C) $\frac{12}{5}$

D) $-\frac{5}{12}$

160) _____

161) $\sin \beta = \frac{\sqrt{11}}{6}$, $\cot \beta = \frac{5}{\sqrt{11}}$; find $\cos \beta$

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

B) $\frac{6}{\sqrt{11}}$

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

D) $\frac{\sqrt{11}}{5}$

161) _____

162) $\cos \theta = \frac{6}{7}$, $\tan \theta = \frac{\sqrt{13}}{6}$; find $\sin \theta$

A) $\frac{7}{6}$

B) $\frac{7}{\sqrt{13}}$

C) $\frac{6}{\sqrt{13}}$

D) $\frac{\sqrt{13}}{7}$

162) _____

Use the reciprocal and quotient identities to find the indicated function value.

163) $\tan \alpha = -\frac{\sqrt{17}}{8}$, $\sin \alpha = \frac{\sqrt{17}}{9}$; find $\cos \alpha$

A) $\frac{9}{8}$

B) $\frac{8}{9}$

C) $-\frac{9}{8}$

D) $-\frac{8}{9}$

163) _____

164) $\cot \theta = \frac{4}{\sqrt{65}}$, $\cos \theta = -\frac{4}{9}$; find $\sin \theta$

A) $-\frac{\sqrt{65}}{9}$

B) $-\frac{9}{\sqrt{65}}$

C) $\frac{\sqrt{65}}{9}$

D) $\frac{9}{\sqrt{65}}$

164) _____

165) $\sec \theta = -\frac{9}{8}$, $\tan \theta = \frac{\sqrt{17}}{8}$; find $\sin \theta$ 165) _____

A) $-\frac{\sqrt{17}}{9}$ B) $\frac{9}{\sqrt{17}}$ C) $\frac{\sqrt{17}}{9}$ D) $-\frac{9}{\sqrt{17}}$

166) $\csc \beta = \frac{9}{\sqrt{17}}$, $\cot \beta = -\frac{8}{\sqrt{17}}$; find $\cos \beta$ 166) _____

A) $\frac{8}{9}$ B) $\frac{9}{8}$ C) $-\frac{8}{9}$ D) $-\frac{9}{8}$

Use Pythagorean identities to find the indicated function value.

167) $\sin \theta = -\frac{3}{5}$, $270^\circ < \theta < 360^\circ$; find $\cos \theta$ 167) _____

A) $\frac{2}{5}$ B) $\frac{8}{5}$ C) $\frac{\sqrt{34}}{5}$ D) $\frac{4}{5}$

168) $\cos \theta = -\frac{6}{7}$, $180^\circ < \theta < 270^\circ$; find $\sin \theta$ 168) _____

A) $-\frac{\sqrt{85}}{7}$ B) $-\frac{13}{7}$ C) $-\frac{\sqrt{13}}{7}$ D) $-\frac{1}{7}$

169) $\tan \theta = -6$, $90^\circ < \theta < 180^\circ$; find $\sec \theta$ 169) _____

A) -5 B) -7 C) $-\sqrt{35}$ D) $-\sqrt{37}$

170) $\sec \theta = -7$, $90^\circ < \theta < 180^\circ$; find $\tan \theta$ 170) _____

A) -8 B) $-5\sqrt{2}$ C) $-4\sqrt{3}$ D) -6

171) $\csc \theta = -7$, $180^\circ < \theta < 270^\circ$; find $\cot \theta$ 171) _____

A) 6 B) $5\sqrt{2}$ C) 8 D) $4\sqrt{3}$

172) $\cot \theta = -3$, $270^\circ < \theta < 360^\circ$; find $\csc \theta$ 172) _____

A) -8 B) -10 C) -2 D) -4

Use the basic trigonometric identities and the given information to find the exact values of the remaining trigonometric functions.

173) $\cos \theta = \frac{7}{25}$ and $270^\circ < \theta < 360^\circ$

173) _____

A) $\sin \theta = -\frac{7}{25}$

B) $\sin \theta = -\frac{24}{25}$

C) $\sin \theta = -\frac{24}{25}$

D) $\sin \theta = \frac{24}{25}$

$\cos \theta = \frac{24}{25}$

$\cos \theta = \frac{7}{25}$

$\cos \theta = \frac{7}{25}$

$\cos \theta = -\frac{7}{25}$

$\tan \theta = -\frac{24}{7}$

$\tan \theta = -\frac{24}{7}$

$\tan \theta = -\frac{7}{24}$

$\tan \theta = -\frac{24}{7}$

$\csc \theta = -\frac{25}{7}$

$\csc \theta = -\frac{25}{24}$

$\csc \theta = -\frac{25}{24}$

$\csc \theta = \frac{25}{24}$

$\sec \theta = \frac{25}{24}$

$\sec \theta = \frac{25}{7}$

$\sec \theta = \frac{25}{7}$

$\sec \theta = -\frac{25}{7}$

$\cot \theta = -\frac{7}{24}$

$\cot \theta = -\frac{7}{24}$

$\cot \theta = -\frac{24}{7}$

$\cot \theta = -\frac{7}{24}$

174) $\csc \theta = -\frac{13}{6}$ and $180^\circ < \theta < 270^\circ$

174) _____

A) $\sin \theta = -\frac{6}{13}$

B) $\sin \theta = -\frac{6}{13}$

$\cos \theta = -\frac{\sqrt{133}}{13}$

$\cos \theta = -\frac{\sqrt{133}}{13}$

$\tan \theta = \frac{\sqrt{133}}{6}$

$\tan \theta = \frac{6\sqrt{133}}{133}$

$\csc \theta = -\frac{13}{6}$

$\csc \theta = -\frac{13}{6}$

$\sec \theta = -\frac{13\sqrt{133}}{133}$

$\sec \theta = -\frac{13\sqrt{133}}{133}$

$\cot \theta = \frac{6\sqrt{133}}{133}$

$\cot \theta = \frac{\sqrt{133}}{6}$

C) $\sin \theta = -\frac{6}{13}$

D) $\sin \theta = -\frac{\sqrt{133}}{13}$

$\cos \theta = \frac{\sqrt{133}}{13}$

$\cos \theta = -\frac{6}{13}$

$\tan \theta = -\frac{6\sqrt{133}}{133}$

$\tan \theta = \frac{6\sqrt{133}}{133}$

$\csc \theta = -\frac{13}{6}$

$\csc \theta = -\frac{13}{6}$

$\sec \theta = \frac{13\sqrt{133}}{133}$

$\sec \theta = -\frac{13\sqrt{133}}{133}$

$\cot \theta = -\frac{\sqrt{133}}{6}$

$\cot \theta = \frac{\sqrt{133}}{6}$

175) $\cot \theta = -\frac{\sqrt{33}}{4}$ and $90^\circ < \theta < 180^\circ$

175) _____

A) $\sin \theta = -\frac{\sqrt{33}}{7}$

B) $\sin \theta = \frac{\sqrt{33}}{7}$

C) $\sin \theta = -\frac{4}{7}$

D) $\sin \theta = \frac{4}{7}$

$\cos \theta = \frac{4}{7}$

$\cos \theta = -\frac{4}{7}$

$\cos \theta = \frac{\sqrt{33}}{7}$

$\cos \theta = -\frac{\sqrt{33}}{7}$

$\tan \theta = -\frac{4\sqrt{33}}{33}$

$\tan \theta = -\frac{4\sqrt{33}}{33}$

$\tan \theta = -\frac{4\sqrt{33}}{33}$

$\tan \theta = -\frac{4\sqrt{33}}{33}$

$\csc \theta = -\frac{7\sqrt{33}}{33}$

$\csc \theta = \frac{7\sqrt{33}}{33}$

$\csc \theta = -\frac{7}{4}$

$\csc \theta = \frac{7}{4}$

$\sec \theta = \frac{7}{4}$

$\sec \theta = -\frac{7}{4}$

$\sec \theta = \frac{7\sqrt{33}}{33}$

$\sec \theta = -\frac{7\sqrt{33}}{33}$

$\cot \theta = -\frac{\sqrt{33}}{4}$

$\cot \theta = -\frac{\sqrt{33}}{4}$

$\cot \theta = -\frac{\sqrt{33}}{4}$

$\cot \theta = -\frac{\sqrt{33}}{4}$

176) $\sin \theta = \frac{12}{13}$ and $\cos \theta = -\frac{5}{13}$

176) _____

A) $\sin \theta = \frac{12}{13}$

B) $\sin \theta = \frac{12}{13}$

C) $\sin \theta = \frac{12}{13}$

D) $\sin \theta = \frac{12}{13}$

$\cos \theta = -\frac{5}{13}$

$\cos \theta = -\frac{5}{13}$

$\cos \theta = -\frac{5}{13}$

$\cos \theta = -\frac{5}{13}$

$\tan \theta = -\frac{5}{12}$

$\tan \theta = -\frac{5}{12}$

$\tan \theta = -\frac{12}{5}$

$\tan \theta = -\frac{12}{5}$

$\csc \theta = -\frac{13}{12}$

$\csc \theta = \frac{13}{12}$

$\csc \theta = \frac{13}{12}$

$\csc \theta = -\frac{13}{12}$

$\sec \theta = \frac{13}{5}$

$\sec \theta = -\frac{13}{5}$

$\sec \theta = -\frac{13}{5}$

$\sec \theta = \frac{13}{5}$

$\cot \theta = -\frac{12}{5}$

$\cot \theta = -\frac{12}{5}$

$\cot \theta = -\frac{5}{12}$

$\cot \theta = -\frac{5}{12}$

$$177) \cos \theta = \frac{\sqrt{23}}{12} \text{ and } \sin \theta = -\frac{11}{12}$$

177) _____

$$A) \sin \theta = -\frac{11}{12}$$

$$\cos \theta = \frac{\sqrt{23}}{12}$$

$$\tan \theta = -\frac{\sqrt{23}}{11}$$

$$\csc \theta = -\frac{12}{11}$$

$$\sec \theta = \frac{12\sqrt{23}}{23}$$

$$\cot \theta = -\frac{11\sqrt{23}}{23}$$

$$C) \sin \theta = -\frac{11}{12}$$

$$\cos \theta = \frac{\sqrt{23}}{12}$$

$$\tan \theta = -\frac{11\sqrt{23}}{23}$$

$$\csc \theta = \frac{12}{11}$$

$$\sec \theta = -\frac{12\sqrt{23}}{23}$$

$$\cot \theta = -\frac{\sqrt{23}}{11}$$

$$B) \sin \theta = -\frac{11}{12}$$

$$\cos \theta = \frac{\sqrt{23}}{12}$$

$$\tan \theta = -\frac{11\sqrt{23}}{23}$$

$$\csc \theta = -\frac{12\sqrt{23}}{23}$$

$$\sec \theta = \frac{12}{11}$$

$$\cot \theta = -\frac{\sqrt{23}}{11}$$

$$D) \sin \theta = -\frac{11}{12}$$

$$\cos \theta = \frac{\sqrt{23}}{12}$$

$$\tan \theta = -\frac{11\sqrt{23}}{23}$$

$$\csc \theta = -\frac{12}{11}$$

$$\sec \theta = \frac{12\sqrt{23}}{23}$$

$$\cot \theta = -\frac{\sqrt{23}}{11}$$

$$178) \tan \theta = \frac{12}{5} \text{ and } \sec \theta = -\frac{13}{5}$$

178) _____

$$A) \sin \theta = -\frac{5}{13}$$

$$\cos \theta = -\frac{12}{13}$$

$$\tan \theta = \frac{12}{5}$$

$$\csc \theta = -\frac{13}{12}$$

$$\sec \theta = -\frac{13}{5}$$

$$\cot \theta = \frac{5}{12}$$

$$B) \sin \theta = -\frac{5}{13}$$

$$\cos \theta = -\frac{12}{13}$$

$$\tan \theta = \frac{12}{5}$$

$$\csc \theta = -\frac{12}{13}$$

$$\sec \theta = -\frac{13}{5}$$

$$\cot \theta = \frac{5}{12}$$

$$C) \sin \theta = -\frac{12}{13}$$

$$\cos \theta = -\frac{5}{13}$$

$$\tan \theta = \frac{12}{5}$$

$$\csc \theta = -\frac{13}{12}$$

$$\sec \theta = -\frac{13}{5}$$

$$\cot \theta = \frac{5}{12}$$

$$D) \sin \theta = -\frac{13}{12}$$

$$\cos \theta = -\frac{5}{13}$$

$$\tan \theta = \frac{12}{5}$$

$$\csc \theta = -\frac{12}{13}$$

$$\sec \theta = -\frac{13}{5}$$

$$\cot \theta = \frac{5}{12}$$

179) $\csc \theta = -\frac{5}{2}$ and $\cot \theta = -\frac{\sqrt{21}}{2}$

179) _____

A) $\sin \theta = -\frac{5\sqrt{21}}{21}$

B) $\sin \theta = -\frac{2}{5}$

C) $\sin \theta = -\frac{2}{5}$

D) $\sin \theta = -\frac{\sqrt{21}}{5}$

$\cos \theta = \frac{2}{5}$

$\cos \theta = \frac{\sqrt{21}}{5}$

$\cos \theta = \frac{5\sqrt{21}}{21}$

$\cos \theta = \frac{2}{5}$

$\tan \theta = -\frac{2\sqrt{21}}{21}$

$\tan \theta = -\frac{2\sqrt{21}}{21}$

$\tan \theta = -\frac{2\sqrt{21}}{21}$

$\tan \theta = -\frac{2\sqrt{21}}{21}$

$\csc \theta = -\frac{5}{2}$

$\csc \theta = -\frac{5}{2}$

$\csc \theta = -\frac{5}{2}$

$\csc \theta = -\frac{5}{2}$

$\sec \theta = \frac{\sqrt{21}}{5}$

$\sec \theta = \frac{5\sqrt{21}}{21}$

$\sec \theta = \frac{\sqrt{21}}{5}$

$\sec \theta = \frac{5\sqrt{21}}{21}$

$\cot \theta = -\frac{\sqrt{21}}{2}$

$\cot \theta = -\frac{\sqrt{21}}{2}$

$\cot \theta = -\frac{\sqrt{21}}{2}$

$\cot \theta = -\frac{\sqrt{21}}{2}$

180) $\sin \theta = -\frac{5}{13}$ and $\tan \theta > 0$

180) _____

A) $\sin \theta = -\frac{5}{13}$

B) $\sin \theta = -\frac{5}{13}$

C) $\sin \theta = -\frac{5}{13}$

D) $\sin \theta = -\frac{5}{13}$

$\cos \theta = -\frac{12}{13}$

$\cos \theta = \frac{12}{13}$

$\cos \theta = -\frac{12}{13}$

$\cos \theta = -\frac{12}{13}$

$\tan \theta = -\frac{5}{12}$

$\tan \theta = -\frac{12}{5}$

$\tan \theta = \frac{5}{12}$

$\tan \theta = -\frac{12}{5}$

$\csc \theta = -\frac{13}{5}$

$\csc \theta = -\frac{13}{5}$

$\csc \theta = -\frac{13}{5}$

$\csc \theta = \frac{13}{5}$

$\sec \theta = -\frac{13}{12}$

$\sec \theta = \frac{13}{12}$

$\sec \theta = -\frac{13}{12}$

$\sec \theta = -\frac{13}{12}$

$\cot \theta = -\frac{12}{5}$

$\cot \theta = -\frac{5}{12}$

$\cot \theta = \frac{12}{5}$

$\cot \theta = -\frac{5}{12}$

181) $\tan \theta = -\frac{\sqrt{13}}{6}$ and $\sec \theta < 0$

181) _____

A) $\sin \theta = \frac{\sqrt{13}}{7}$

B) $\sin \theta = -\frac{\sqrt{13}}{7}$

C) $\sin \theta = \frac{6}{7}$

D) $\sin \theta = \frac{\sqrt{13}}{7}$

$\cos \theta = -\frac{6}{7}$

$\cos \theta = \frac{6}{7}$

$\cos \theta = -\frac{\sqrt{13}}{7}$

$\cos \theta = -\frac{6}{7}$

$\tan \theta = -\frac{6\sqrt{13}}{13}$

$\tan \theta = -\frac{\sqrt{13}}{6}$

$\tan \theta = -\frac{\sqrt{13}}{6}$

$\tan \theta = -\frac{\sqrt{13}}{6}$

$\csc \theta = \frac{7\sqrt{13}}{13}$

$\csc \theta = \frac{7\sqrt{13}}{13}$

$\csc \theta = \frac{7\sqrt{13}}{13}$

$\csc \theta = \frac{7\sqrt{13}}{13}$

$\sec \theta = -\frac{7}{6}$

$\sec \theta = \frac{7}{6}$

$\sec \theta = -\frac{7\sqrt{13}}{13}$

$\sec \theta = -\frac{7}{6}$

$\cot \theta = -\frac{\sqrt{13}}{6}$

$\cot \theta = -\frac{6\sqrt{13}}{13}$

$\cot \theta = -\frac{6\sqrt{13}}{13}$

$\cot \theta = -\frac{6\sqrt{13}}{13}$

$$182) \sec \theta = \frac{10}{3} \text{ and } \cot \theta < 0$$

182) _____

A) $\sin \theta = -\frac{3}{10}$

$$\cos \theta = \frac{\sqrt{91}}{10}$$

$$\tan \theta = -\frac{3\sqrt{91}}{91}$$

$$\csc \theta = -\frac{10\sqrt{91}}{91}$$

$$\sec \theta = \frac{10}{3}$$

$$\cot \theta = -\frac{\sqrt{91}}{3}$$

C) $\sin \theta = -\frac{\sqrt{91}}{10}$

$$\cos \theta = \frac{3}{10}$$

$$\tan \theta = -\frac{3\sqrt{91}}{91}$$

$$\csc \theta = -\frac{10\sqrt{91}}{91}$$

$$\sec \theta = \frac{10}{3}$$

$$\cot \theta = -\frac{\sqrt{91}}{3}$$

B) $\sin \theta = \frac{\sqrt{91}}{10}$

$$\cos \theta = -\frac{3}{10}$$

$$\tan \theta = -\frac{\sqrt{91}}{3}$$

$$\csc \theta = -\frac{10\sqrt{91}}{91}$$

$$\sec \theta = \frac{10}{3}$$

$$\cot \theta = -\frac{3\sqrt{91}}{91}$$

D) $\sin \theta = -\frac{\sqrt{91}}{10}$

$$\cos \theta = \frac{3}{10}$$

$$\tan \theta = -\frac{\sqrt{91}}{3}$$

$$\csc \theta = -\frac{10\sqrt{91}}{91}$$

$$\sec \theta = \frac{10}{3}$$

$$\cot \theta = -\frac{3\sqrt{91}}{91}$$

Use the basic identities to simplify the expression.

$$183) (1 - \cos \theta)(1 + \cos \theta) + \cos^2 \theta$$

A) 0

B) 2

C) 1

D) $2 \cos^2 \theta$

183) _____

$$184) (1 - \cos \theta)(1 + \cos \theta) - \sin^2 \theta$$

A) 0

B) $\sin^2 \theta$

C) 2

D) 1

184) _____

$$185) \cot^2 \theta - (\csc \theta - 1)(\csc \theta + 1)$$

A) 1

B) 2

C) 0

D) $2 \cot^2 \theta$

185) _____

$$186) (1 - \cot \theta)(1 + \cot \theta) + \csc^2 \theta$$

A) $2 \csc^2 \theta$

B) 2

C) 0

D) 1

186) _____

$$187) (\tan \theta - \sec \theta)(\tan \theta + \sec \theta)$$

A) 1

B) $\tan^2 \theta + \sec^2 \theta$

C) -1

D) 0

187) _____

$$188) \frac{\sec^2 \theta - 9}{3 + \sec \theta} - \sec \theta \quad 188) \underline{\hspace{2cm}}$$

- A) 3 B) 0 C) -3 D) $2 \sec^2 \theta - 3$

$$189) \frac{\sin \theta \cos \theta (\sec \theta - \csc \theta)}{\cos \theta - \sin \theta} \quad 189) \underline{\hspace{2cm}}$$

- A) $\sin \theta - \cos \theta$ B) -1 C) $\frac{1}{\sin \theta - \cos \theta}$ D) 1

$$190) \frac{1}{\tan \theta - \sec \theta} - \frac{1}{\tan \theta + \sec \theta} + 2 \sec \theta \quad 190) \underline{\hspace{2cm}}$$

- A) $2 \sec \theta$ B) $4 \sec \theta$ C) 0 D) $-4 \sec \theta$

$$191) \frac{\cot^2 \theta + 3 \cot \theta - 4}{\cot \theta + 4} \quad 191) \underline{\hspace{2cm}}$$

- A) $\frac{(\cot \theta - 4)(\cot \theta - 1)}{\cot \theta + 4}$ B) $\cot \theta - 4$
C) $\cot \theta + 1$ D) $\cot \theta - 1$

$$192) \frac{\cot^2 \theta + 5 \csc \theta - 5}{\csc \theta - 1} \quad 192) \underline{\hspace{2cm}}$$

- A) $\csc \theta + 5$ B) $\csc \theta + 6$
C) $\csc \theta - 6$ D) $\frac{(\csc \theta - 6)(\csc \theta + 1)}{\csc \theta - 1}$

Solve the problem.

193) A ladder x feet long leans against a house and makes an angle θ with the horizontal. The base of the ladder is 10 feet from the house. Then $x = \frac{10}{\cos \theta}$. Use a reciprocal identity to rewrite this formula. 193)

- A) $10 \sec \theta$ B) $\frac{10}{\sec \theta}$ C) $10 \sin \theta$ D) $\frac{10}{\sin \theta}$

194) From a distance of x feet to a 110-meter-high radio tower, the angle of elevation is θ degrees. Then $x = \frac{110}{\tan \theta}$. Use a reciprocal identity to rewrite this formula. 194)

- A) $110 \cot \theta$ B) $\frac{110}{\csc \theta}$ C) $\frac{110}{\cot \theta}$ D) $110 \sec \theta$

Answer Key

Testname: UNTITLED1

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

Answer Key

Testname: UNTITLED1

- 51) B
- 52) D
- 53) A
- 54) D
- 55) A
- 56) D
- 57) C
- 58) D
- 59) B
- 60) D
- 61) A
- 62) D
- 63) A
- 64) B
- 65) C
- 66) C
- 67) C
- 68) C
- 69) C
- 70) B
- 71) A
- 72) C
- 73) D
- 74) B
- 75) B
- 76) C
- 77) C
- 78) D
- 79) B
- 80) C
- 81) D
- 82) C
- 83) D
- 84) B
- 85) B
- 86) B
- 87) C
- 88) D
- 89) C
- 90) C
- 91) B
- 92) D
- 93) D
- 94) C
- 95) B
- 96) B
- 97) D
- 98) C
- 99) D
- 100) D

Answer Key

Testname: UNTITLED1

- 101) B
- 102) A
- 103) B
- 104) A
- 105) A
- 106) B
- 107) A
- 108) B
- 109) B
- 110) A
- 111) D
- 112) D
- 113) A
- 114) C
- 115) D
- 116) B
- 117) D
- 118) C
- 119) D
- 120) B
- 121) B
- 122) D
- 123) D
- 124) C
- 125) A
- 126) D
- 127) C
- 128) C
- 129) C
- 130) D
- 131) D
- 132) B
- 133) A
- 134) C
- 135) A
- 136) A
- 137) B
- 138) B
- 139) D
- 140) B
- 141) B
- 142) C
- 143) A
- 144) A
- 145) B
- 146) C
- 147) D
- 148) D
- 149) D
- 150) C

Answer Key

Testname: UNTITLED1

- 151) A
- 152) C
- 153) B
- 154) B
- 155) C
- 156) B
- 157) B
- 158) D
- 159) C
- 160) D
- 161) C
- 162) D
- 163) D
- 164) A
- 165) A
- 166) C
- 167) D
- 168) C
- 169) D
- 170) C
- 171) D
- 172) B
- 173) B
- 174) B
- 175) D
- 176) C
- 177) D
- 178) C
- 179) B
- 180) C
- 181) D
- 182) D
- 183) C
- 184) A
- 185) C
- 186) B
- 187) C
- 188) C
- 189) B
- 190) C
- 191) D
- 192) B
- 193) A
- 194) A