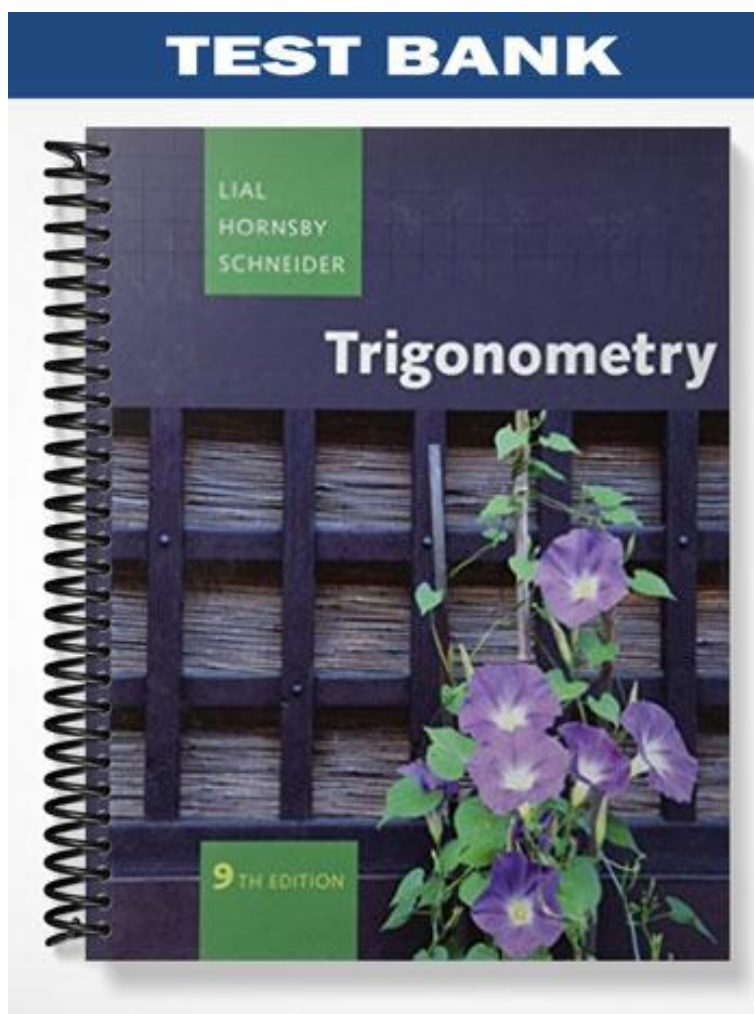


TEST BANK



MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Provide an appropriate response.

- 1) Find the complement of an angle whose measure is 75° . 1) _____
A) 75° B) 105° C) 15° D) 165°

Answer: C

- 2) Find the supplement of an angle whose measure is 35° . 2) _____
A) 125° B) 55° C) 145° D) 215°

Answer: C

- 3) Find the supplement of an angle whose measure is 95° . 3) _____
A) 275° B) -5° C) 85° D) 185°

Answer: C

- 4) Find the complement of an angle whose measure is $34^\circ 15'$. 4) _____
A) $55^\circ 45'$ B) $56^\circ 44'$ C) $56^\circ 45'$ D) $55^\circ 15'$

Answer: A

- 5) Find the supplement of an angle whose measure is $74^\circ 59'$. 5) _____
A) $105^\circ 1'$ B) $106^\circ 1'$ C) $15^\circ 1'$ D) $105^\circ 59'$

Answer: A

- 6) Find the supplement of an angle whose measure is $37^\circ 45' 2''$. 6) _____
A) $142^\circ 14' 58''$ B) $52^\circ 15' 58''$ C) $52^\circ 14' 58''$ D) $142^\circ 15' 58''$

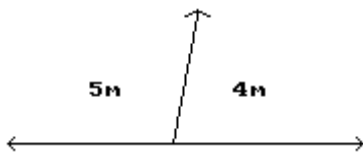
Answer: A

- 7) Find the complement of an angle whose measure is $34^\circ 21' 49''$. 7) _____
A) $56^\circ 39' 11''$ B) $55^\circ 38' 11''$ C) $55^\circ 38' 10''$ D) $55^\circ 39' 11''$

Answer: B

Find the measure of each angle in the problem.

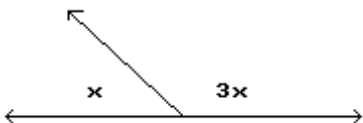
- 8) 8) _____



- A) 95° and 85° B) 100° and 80° C) 200° and 160° D) 50° and 40°

Answer: B

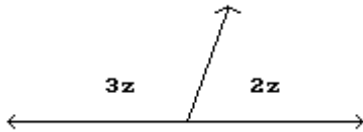
- 9) 9) _____



- A) 45° and 135° B) 90° and 270° C) 60° and 120° D) 45° and 55°

Answer: A

10)



A) 60° and 40°

B) 108° and 72°

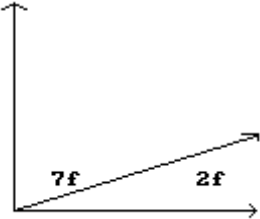
C) 100° and 80°

D) 216° and 144°

Answer: B

10) _____

11)



A) 35° and 10°

B) 65° and 35°

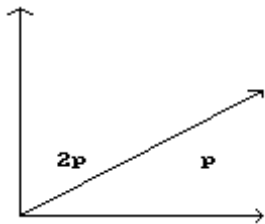
C) 140° and 40°

D) 70° and 20°

Answer: D

11) _____

12)



A) 30° and 60°

B) 60° and 120°

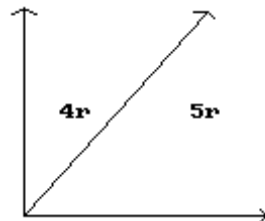
C) 15° and 30°

D) 17° and 34°

Answer: A

12) _____

13)



A) 40° and 50°

B) 20° and 30°

C) 20° and 25°

D) 30° and 60°

Answer: A

13) _____

14) Supplementary angles with measures $3x + 4$ and $2x + 1$ degrees

A) 109° and 71°

B) 94° and 86°

C) 124° and 56°

D) 79° and 101°

Answer: A

14) _____

15) Complementary angles with measures $5x$ and $4x - 27$ degrees

A) 115° and 65°

B) 13° and 77°

C) 65° and 25°

D) 67° and 23°

Answer: C

15) _____

Perform the calculation.

16) $139^{\circ}47' + 108^{\circ}48'$ 16) _____
A) $248^{\circ}95'$ B) $248^{\circ}35'$ C) $36^{\circ}35'$ D) $36^{\circ}95'$
Answer: B

17) $90^{\circ} - 46^{\circ}46'$ 17) _____
A) $44^{\circ}14'$ B) $43^{\circ}46'$ C) $43^{\circ}14'$ D) $44^{\circ}46'$
Answer: C

18) $180^{\circ} - 119^{\circ}45'29''$ 18) _____
A) $61^{\circ}14'31''$ B) $60^{\circ}15'31''$ C) $60^{\circ}14'31''$ D) $61^{\circ}15'31''$
Answer: C

19) $98^{\circ}23' - 13^{\circ}43'$ 19) _____
A) $85^{\circ}20'$ B) $85^{\circ}43'$ C) $111^{\circ}66'$ D) $84^{\circ}40'$
Answer: D

20) $90^{\circ} - 30^{\circ}19'58''$ 20) _____
A) $59^{\circ}41'2''$ B) $59^{\circ}40'2''$ C) $60^{\circ}41'2''$ D) $59^{\circ}40'1''$
Answer: B

Convert the angle to decimal degrees and round to the nearest hundredth of a degree.

21) $45^{\circ}31'46''$ 21) _____
A) 45.49° B) 45.59° C) 45.53° D) 45.54°
Answer: C

22) $164^{\circ}24'29''$ 22) _____
A) 164.47° B) 164.42° C) 164.37° D) 164.41°
Answer: D

23) $344^{\circ}4'55''$ 23) _____
A) 344.09° B) 344.04° C) 344.08° D) 344.14°
Answer: C

24) $48^{\circ}19'47''$ 24) _____
A) 48.29° B) 48.33° C) 48.39° D) 48.34°
Answer: B

25) $186^{\circ}2'51''$ 25) _____
A) 186.06° B) 186.11° C) 186.01° D) 186.05°
Answer: D

26) $282^{\circ}53'6''$ 26) _____
A) 282.90° B) 282.85° C) 282.89° D) 282.95°
Answer: C

27) $62^{\circ}44'$ 27) _____
A) 63.73° B) 62.73° C) 62.44° D) 62.88°
Answer: B

Convert the angle to degrees, minutes, and seconds.

- 28) 25.77° 28) _____
A) $25^\circ 46' 0''$ B) $25^\circ 46' 77''$ C) $25^\circ 46' 18''$ D) $25^\circ 46' 12''$
Answer: D

- 29) 144.62° 29) _____
A) $144^\circ 37' 62''$ B) $144^\circ 38' 12''$ C) $144^\circ 35' 62''$ D) $144^\circ 37' 12''$
Answer: D

- 30) 28.34° 30) _____
A) $28^\circ 20' 24''$ B) $28^\circ 20' 14''$ C) $28^\circ 30' 14''$ D) $28^\circ 30' 24''$
Answer: A

- 31) 295.62° 31) _____
A) $295^\circ 38' 11''$ B) $295^\circ 37' 62''$ C) $295^\circ 37' 12''$ D) $295^\circ 11' 62''$
Answer: C

Find the angle of smallest possible positive measure coterminal with the given angle.

- 32) -172° 32) _____
A) 172° B) 188° C) 368° D) 8°
Answer: B

- 33) 438° 33) _____
A) 258° B) 78° C) 219° D) 68°
Answer: B

- 34) 840° 34) _____
A) 120° B) 480° C) 470° D) 110°
Answer: A

- 35) -19° 35) _____
A) 71° B) 251° C) 19° D) 341°
Answer: D

- 36) 1325° 36) _____
A) 605° B) 155° C) 65° D) 245°
Answer: D

Give an expression that generates all angles coterminal with the given angle. Let n represent any integer.

- 37) 87° 37) _____
A) $87^\circ + n \cdot 360^\circ$ B) $87^\circ + n \cdot 720^\circ$ C) $87^\circ + n \cdot 180^\circ$ D) $87^\circ + n \cdot 90^\circ$
Answer: A

- 38) 183° 38) _____
A) $183^\circ + n \cdot 180^\circ$ B) $183^\circ + n \cdot 360^\circ$ C) $183^\circ + 2n\pi$ D) $183^\circ + n \cdot 90^\circ$
Answer: B

- 39) -45° 39) _____
A) $-45^\circ + 2n \cdot 360^\circ$ B) $-45^\circ + n \cdot 180^\circ$ C) $-45^\circ + n \cdot 360^\circ$ D) $-45^\circ - n \cdot 180^\circ$
Answer: C

40) -356°

A) $-356^\circ + n \cdot 90^\circ$

B) $-356^\circ + n \cdot 180^\circ$

C) $-356^\circ + n \cdot 360^\circ$

D) $-356^\circ + 2n\pi$

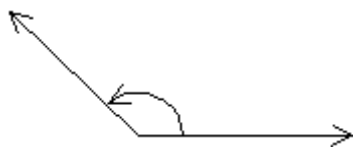
40) _____

Answer: C

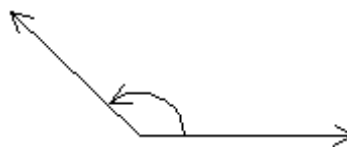
Draw the given angle in standard position. Draw an arrow representing the correct amount of rotation. Find the measure of two other angles, one positive and one negative, coterminal with the given angle.

41) 50°

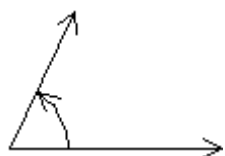
A) 410° and -310°



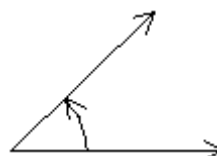
B) 230° and -130°



C) 230° and -130°



D) 410° and -310°

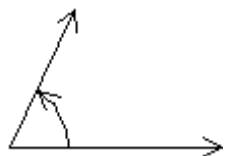


41) _____

Answer: D

42) 65°

A) 425° and -295°



B) 425° and -295°



C) 245° and -115°



D) 245° and -115°

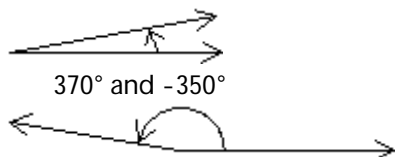


42) _____

Answer: A

43) 10°

A) 370° and -350°



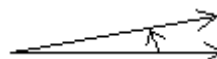
B) 190° and -170°



C) 370° and -350°



D) 190° and -170°



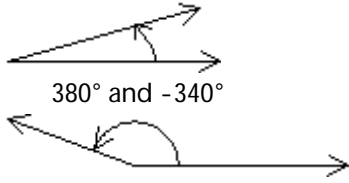
43) _____

Answer: A

44) 20°

A) 380° and -340°

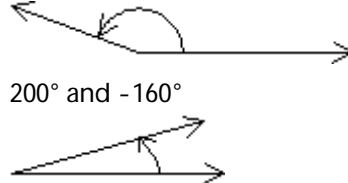
C) 380° and -340°



Answer: A

B) 200° and -160°

D) 200° and -160°

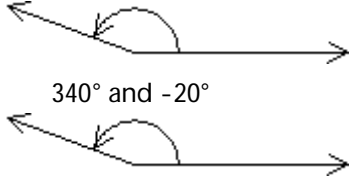


44) _____

45) 160°

A) 520° and -200°

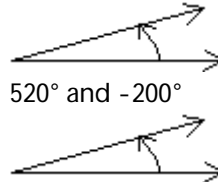
C) 340° and -20°



Answer: A

B) 340° and -20°

D) 520° and -200°

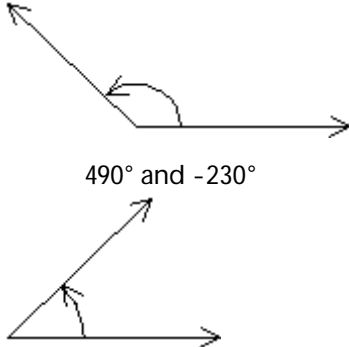


45) _____

46) 130°

A) 310° and -50°

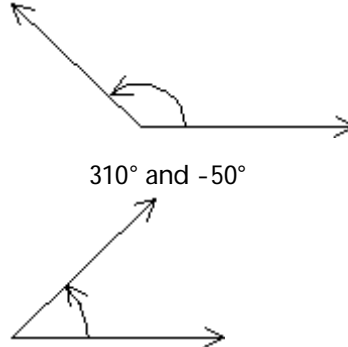
C) 490° and -230°



Answer: B

B) 490° and -230°

D) 310° and -50°

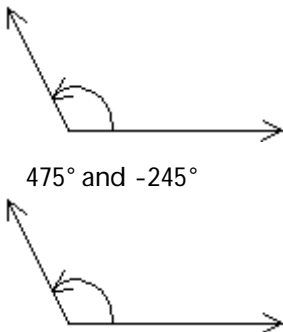


46) _____

47) 115°

A) 295° and -65°

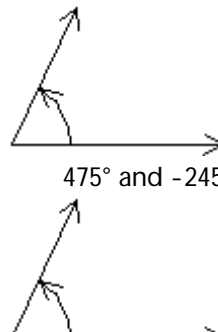
C) 475° and -245°



Answer: C

B) 295° and -65°

D) 475° and -245°

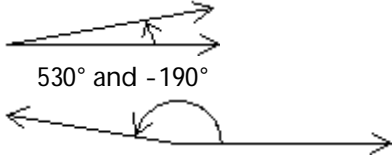


47) _____

48) 170°

A) 530° and -190°

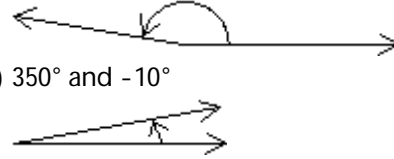
C) 530° and -190°



Answer: C

B) 350° and -10°

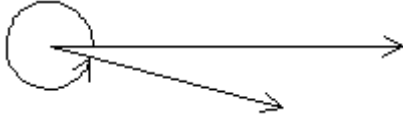
D) 350° and -10°



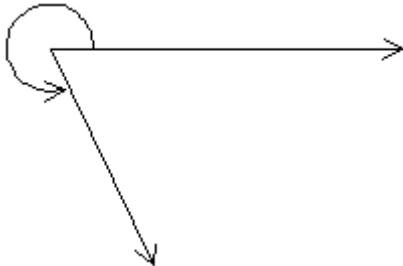
48) _____

49) 295°

A) 755° and -105°

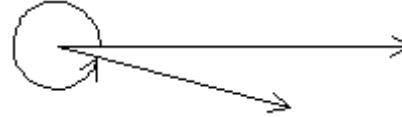


C) 655° and -65°

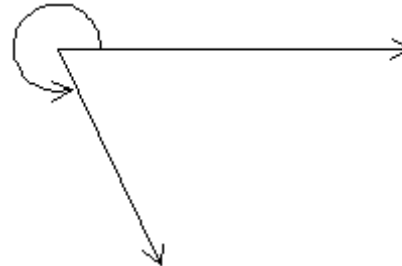


Answer: C

B) 85° and -95°



D) 65° and -65°



49) _____

50) -85°

A) 175° and -5°

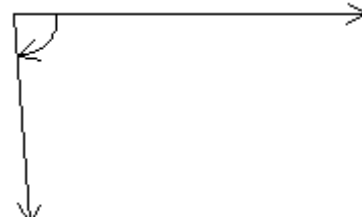


C) 275° and -445°



Answer: C

B) 85° and -105°



D) 185° and -355°



50) _____

Solve the problem.

51) Find the measure of the smaller angle formed by the hands of the clock shown.

51) _____



- A) 110° B) 150° C) 120° D) 60°

Answer: C

52) A wheel makes 270 revolutions per minute. How many revolutions does it make per second?

52) _____

- A) 2.7 revolutions per second B) 4.5 revolutions per second
C) 9 revolutions per second D) 1620 revolutions per second

Answer: B

53) A wheel is rotating 360 times per minute. Through how many degrees does a point on the edge of the wheel move in $\frac{1}{2}$ seconds?

53) _____

- A) 270° B) 36° C) 1080° D) 810°

Answer: C

54) A surveyor recording data for a new subdivision measured an angle as 16.80° . The next day, a different surveyor measured the same angle as $16^\circ 31'$. Find the difference between these measurements (i) to the nearest minute and (ii) to the nearest hundredth of a degree.

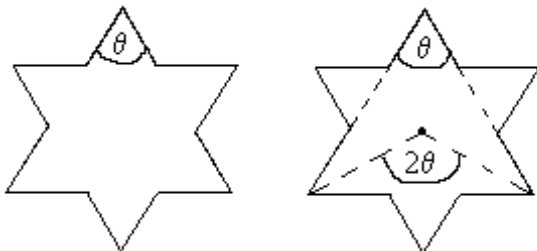
54) _____

- A) (i) $49'$ (ii) 0.49° B) (i) $79'$ (ii) 1.32°
C) (i) $41'$ (ii) 0.46° D) (i) $17'$ (ii) 0.28°

Answer: D

55) Determine the measure of the angle in each point of the six-pointed star appearing on police badges and vehicles. (Hint: Inscribe the star in a circle, and use the following theorem from geometry: *An angle whose vertex lies on the circumference of a circle is equal to half the central angle that cuts off the same arc.* See the figure.)

55) _____



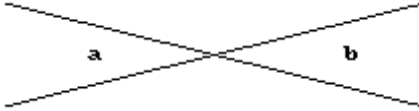
- A) 90° B) 75° C) 60° D) 45°

Answer: C

Use the properties of angle measures to find the measure of each marked angle.

56) Find the measure of the marked angles.

56) _____



$$a = (2x + 9)^\circ$$

$$b = (3x - 23)^\circ$$

A) $32^\circ, 32^\circ$

B) $-1^\circ, -1^\circ$

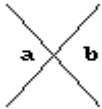
C) $58^\circ, 58^\circ$

D) $73^\circ, 73^\circ$

Answer: D

57) Find the measure of the marked angles.

57) _____



$$a = (5x + 97)^\circ$$

$$b = (2x + 127)^\circ$$

A) $147^\circ, 147^\circ$

B) $170^\circ, 170^\circ$

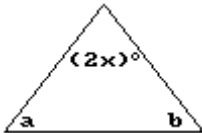
C) $98^\circ, 98^\circ$

D) $10^\circ, 10^\circ$

Answer: A

58) Find the measure of the marked angles.

58) _____



$$a = (x + 78)^\circ$$

$$b = (x + 26)^\circ$$

A) $19^\circ, 38^\circ, 33^\circ$

B) $19^\circ, 38^\circ, 123^\circ$

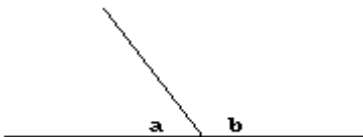
C) $38^\circ, 97^\circ, 45^\circ$

D) $71^\circ, 71^\circ, 38^\circ$

Answer: C

59) Find the measure of the marked angles.

59) _____



$$a = (11x + 12)^\circ, b = (4x + 123)^\circ$$

A) $11^\circ, 169^\circ$

B) $45^\circ, 123^\circ$

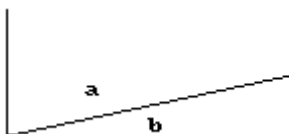
C) $11^\circ, 79^\circ$

D) $45^\circ, 135^\circ$

Answer: D

60) Find the measure of the marked angles.

60) _____



$$a = (4x + 12)^\circ, b = (2x + 66)^\circ$$

A) $2^\circ, 88^\circ$

B) $2^\circ, 178^\circ$

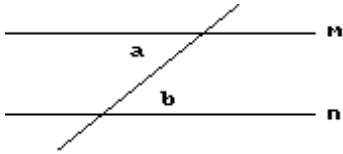
C) $20^\circ, 66^\circ$

D) $20^\circ, 70^\circ$

Answer: D

61) Find the measure of the marked angles.
Lines m and n are parallel.

61) _____



$$a = (4x + 10)^\circ$$

$$b = (3x + 16)^\circ$$

A) $34^\circ, 34^\circ$

B) $84^\circ, 84^\circ$

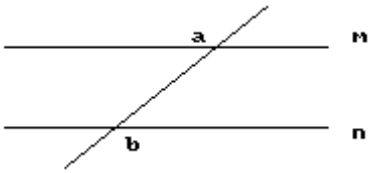
C) $-6^\circ, -6^\circ$

D) $6^\circ, 6^\circ$

Answer: A

62) Find the measure of the marked angles.
Lines m and n are parallel.

62) _____



$$a = (3x + 43)^\circ$$

$$b = (5x - 29)^\circ$$

A) $151^\circ, 151^\circ$

B) $36^\circ, 36^\circ$

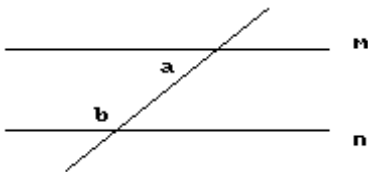
C) $144^\circ, 144^\circ$

D) $37^\circ, 37^\circ$

Answer: A

63) Find the measure of the marked angles.

63) _____



$$a = (2x + 10)^\circ$$

$$b = (4x + 116)^\circ$$

A) $81^\circ, 99^\circ$

B) $9^\circ, 171^\circ$

C) $5^\circ, 174^\circ$

D) $28^\circ, 152^\circ$

Answer: D

Find the measure of the third angle of a triangle if the measures of the other two angles are given.

64) 20° and 80°

64) _____

A) 260°

B) 100°

C) 80°

D) -10°

Answer: C

65) 22° and 54°

65) _____

A) 14°

B) 284°

C) 104°

D) 76°

Answer: C

66) $26^\circ 25'$ and $37^\circ 21'$

66) _____

A) $296^\circ 54'$

B) $116^\circ 14'$

C) $297^\circ 54'$

D) $117^\circ 14'$

Answer: B

67) 30.2° and 74.5°

A) 165.3°

B) 255.3°

C) 75.3°

D) 45.3°

67) _____

Answer: C

68) 103.6° and 45.3°

A) 31.1°

B) 51.1°

C) 211.1°

D) 41.1°

68) _____

Answer: A

Classify the triangle as acute, right, or obtuse and classify it as equilateral, isosceles, or scalene.

69)



A) Acute, equilateral

C) Obtuse, isosceles

B) Obtuse, equilateral

D) Acute, scalene

69) _____

Answer: A

70)



A) Acute, scalene

C) Acute, isosceles

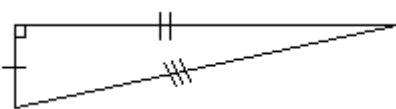
B) Obtuse, scalene

D) Obtuse, equilateral

70) _____

Answer: C

71)



A) Obtuse, equilateral

C) Obtuse, scalene

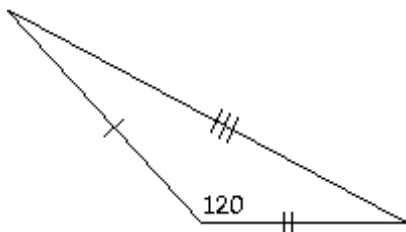
B) Acute, scalene

D) Right, scalene

71) _____

Answer: D

72)



A) Right, scalene

C) Obtuse, scalene

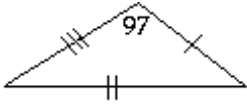
B) Acute, equilateral

D) Obtuse, equilateral

72) _____

Answer: C

73)



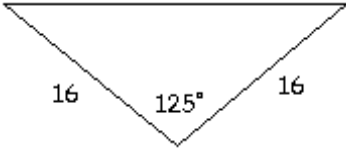
- A) Obtuse, equilateral
- C) Right, isosceles

Answer: B

- B) Obtuse, scalene
- D) Acute, equilateral

73) _____

74)



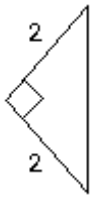
- A) Obtuse, isosceles
- C) Acute, scalene

Answer: A

- B) Obtuse, equilateral
- D) Right, isosceles

74) _____

75)



- A) Obtuse, isosceles
- C) Right, scalene

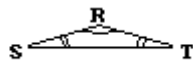
Answer: D

- B) Right, equilateral
- D) Right, isosceles

75) _____

The triangles are similar. Find the angle or side that corresponds to the given angle or side in the other triangle.

76) A



A) C

B) R

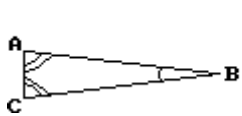
C) T

D) S

Answer: B

76) _____

77) B



A) R

B) T

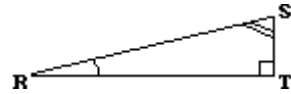
C) S

D) C

Answer: B

77) _____

78) C



A) T

B) C

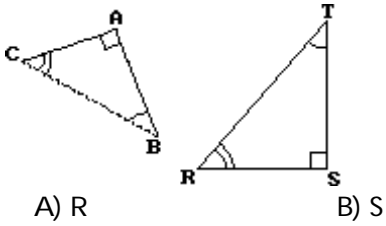
C) R

D) S

Answer: C

78) _____

79) B



A) R

B) S

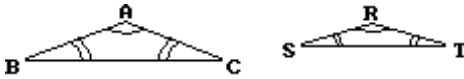
C) T

D) C

Answer: C

79) _____

80) BC



A) ST

C) RS

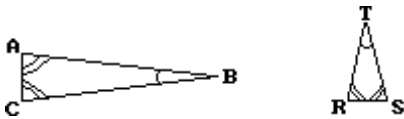
B) RT

D) Cannot be determined

Answer: A

80) _____

81) AC



A) Cannot be determined

C) RS

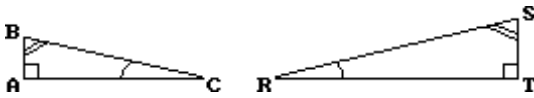
B) ST

D) RT

Answer: C

81) _____

82) BA



A) RS

C) RT

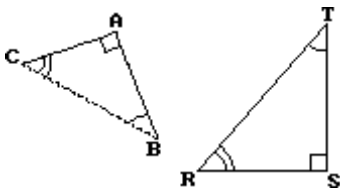
B) Cannot be determined

D) ST

Answer: D

82) _____

83) AC



A) SR

C) RT

B) Cannot be determined

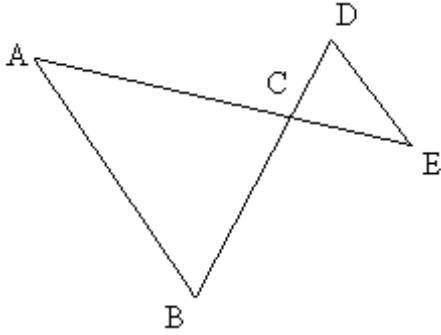
D) ST

Answer: A

83) _____

84) AC
(AB is parallel to DE.)

84) _____

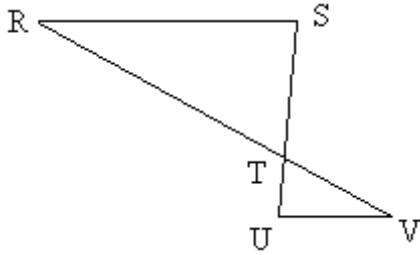


- A) Cannot be determined
- B) EC
- C) DE
- D) CD

Answer: B

85) U
(RS is parallel to UV.)

85) _____



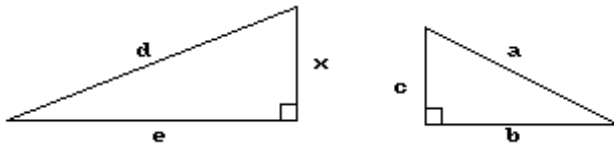
- A) S
- B) R
- C) T
- D) V

Answer: A

The triangles are similar. Find the missing side, angle or value of the variable.

86)

86) _____



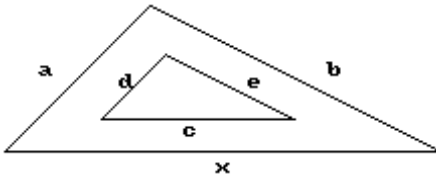
- a = 13
- b = 12
- c = 5
- d = 26
- e = 24

- A) x = 15
- B) x = 7
- C) x = 5
- D) x = 10

Answer: D

87)

87) _____



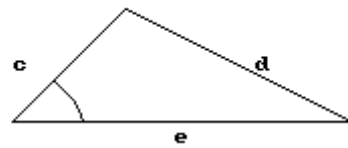
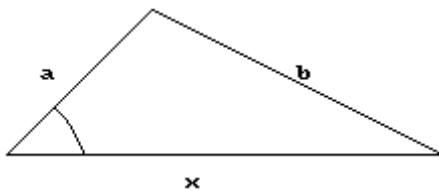
- a = 8
- b = 10
- c = 6
- d = 4
- e = 5

- A) x = 14
- B) x = 12
- C) x = 18
- D) x = 6

Answer: B

88)

88) _____



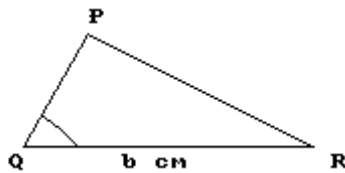
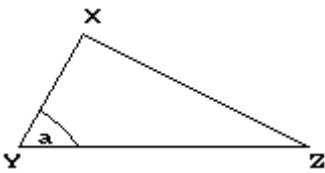
- a = 18
- b = 27
- c = 14
- d = 21
- e = 28

- A) x = 36
- B) x = 34
- C) x = 28
- D) x = 45

Answer: A

89) $\angle Q$

89) _____



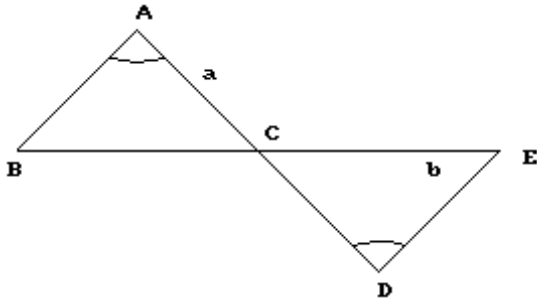
- a = 60°
- b = 6 cm

- A) 6 cm
- B) 90°
- C) 30°
- D) 60°

Answer: D

90) $\angle B$

90) _____



$a = 11 \text{ cm}$

$b = 64^\circ$

A) 86°

B) 11 cm

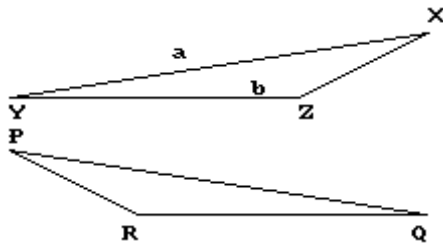
C) 64°

D) 30°

Answer: C

91) $\angle R$

91) _____



$a = 22 \text{ cm}$

$b = 110^\circ$

A) 22 cm

B) 110°

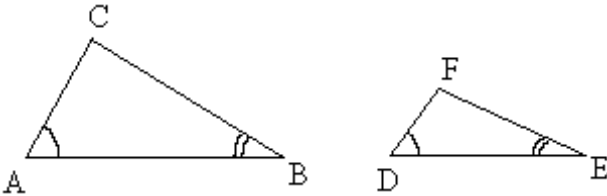
C) 10°

D) 60°

Answer: B

92) $\angle C$

92) _____



$m\angle A = 57^\circ$

$m\angle E = 28^\circ$

A) 28°

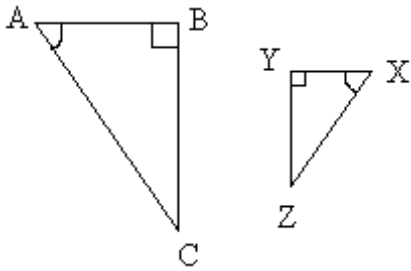
B) 95°

C) 57°

D) 105°

Answer: B

93) $\angle Z$.



93) _____

$m\angle A = 52^\circ$

A) 48°

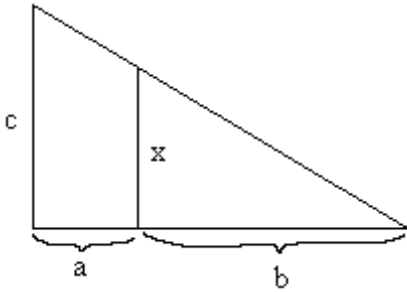
B) 38°

C) 52°

D) 128°

Answer: B

94) x



94) _____

$a = 30$

$b = 90$

$c = 52$

A) $x = 26$

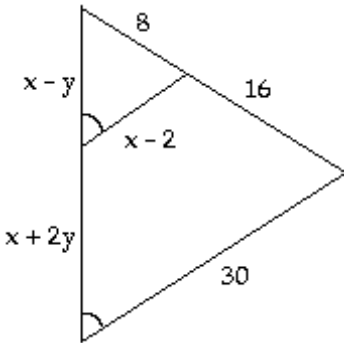
B) $x = 13$

C) $x = 52$

D) $x = 39$

Answer: D

95) x and y



95) _____

A) $x = 8; y = 2$

B) $x = 10; y = \frac{5}{2}$

C) $x = 17; y = \frac{17}{4}$

D) $x = 12; y = 3$

Answer: D

Solve the problem. Round answers to the nearest tenth if necessary.

96) A tree casts a shadow 42 m long. At the same time, the shadow cast by a 30-centimeter-tall statue is 66 cm long. Find the height of the tree.

96) _____

A) 17.6 m

B) 90.9 m

C) 19.1 m

D) 92.4 m

Answer: C

- 97) A triangle drawn on a map has sides of lengths 8 cm, 12 cm, and 13 cm. The shortest of the corresponding real-life distances is 120 km. Find the longest of the real-life distances. 97) _____
- A) 170.0 km B) 180.0 km C) 195.0 km D) 205.0 km

Answer: C

- 98) Two quadrilaterals (four-sided figures) are similar. The lengths of the three longest sides of the first quadrilateral are 24 ft, 16 ft, and 12 ft. The lengths of the two shortest sides of the second quadrilateral are 18 ft and 9 ft. Find the unknown lengths of the sides of these two figures. 98) _____
- A) The unknown side in the first quadrilateral is 6 ft. The two unknown sides in the second quadrilateral are 36 ft and 24 ft.
- B) The unknown side in the first quadrilateral is 8 ft. The two unknown sides in the second quadrilateral are 36 ft and 12 ft.
- C) The unknown side in the first quadrilateral is 10 ft. The two unknown sides in the second quadrilateral are 27 ft and 24 ft.
- D) Not enough information is provided.

Answer: A

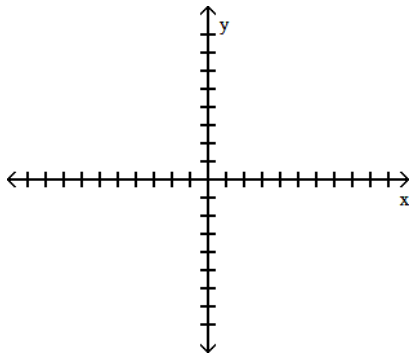
- 99) An alien observer on Planet X can approximate distances in the sky by using his "hand" at arm's length. An outstretched hand is about 30 arc degrees, a clenched fist is about 25 arc degrees, and a thumb corresponds to about 1 arc degree. (i) If one clenched fist plus one outstretched hand covers the distance between two stars, about how far apart in arc degrees are the stars? (ii) The apparent size of Moon X as observed from Planet X is about 19 arc minutes. Approximately what part of an observer's thumb would cover Moon X? 99) _____
- A) (i) 50 arc degrees; (ii) approximately $\frac{1}{4}$ of a thumb
- B) (i) 55 arc degrees; (ii) approximately $\frac{1}{3}$ of a thumb
- C) (i) 56 arc degrees; (ii) approximately $\frac{1}{5}$ of a thumb
- D) (i) 26 arc degrees; (ii) approximately $\frac{1}{2}$ of a thumb

Answer: B

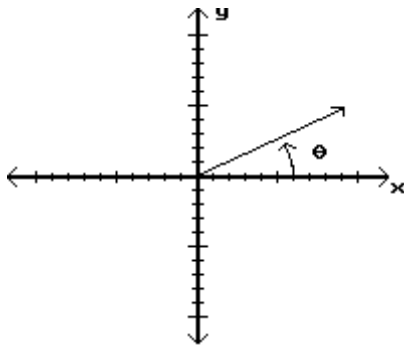
Sketch an angle θ in standard position such that θ has the smallest positive measure and the given point is on the terminal side of θ .

100) (3, 6)

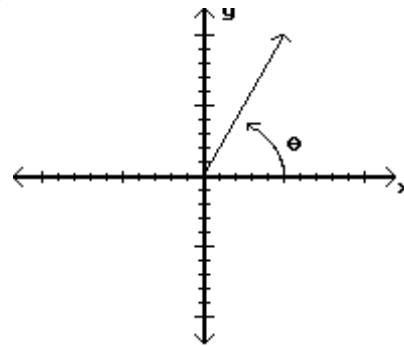
100) _____



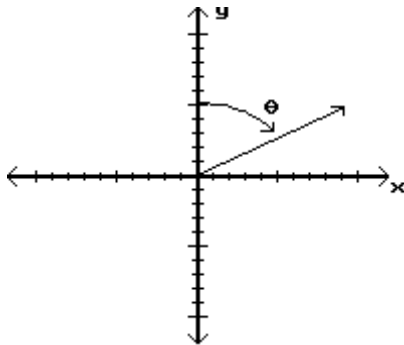
A)



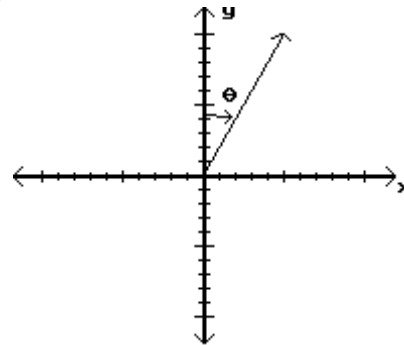
B)



C)



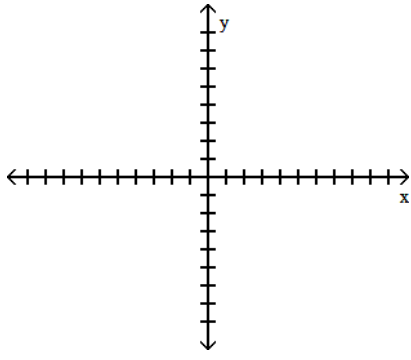
D)



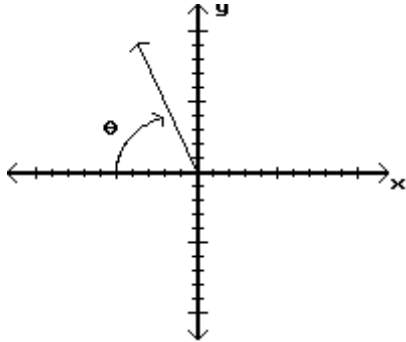
Answer: B

101) $(-2, 5)$

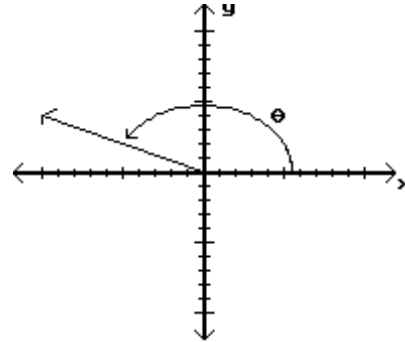
101) _____



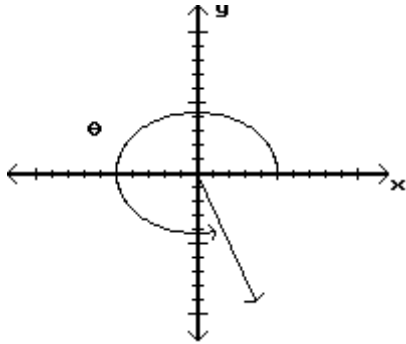
A)



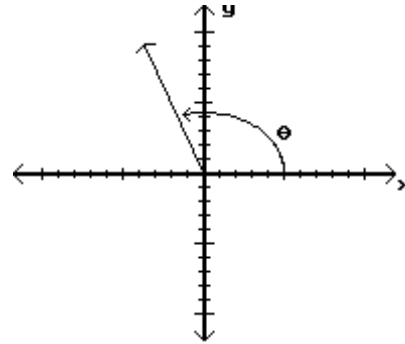
B)



C)



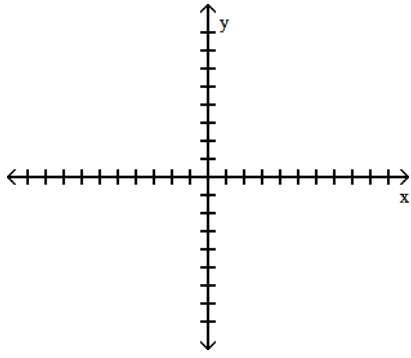
D)



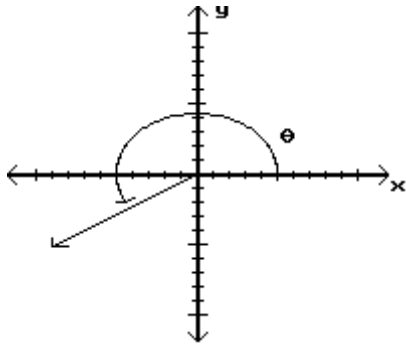
Answer: D

102) $(-5, -3)$

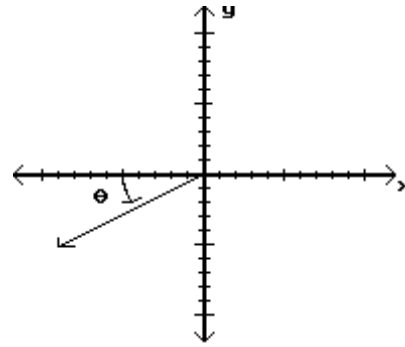
102) _____



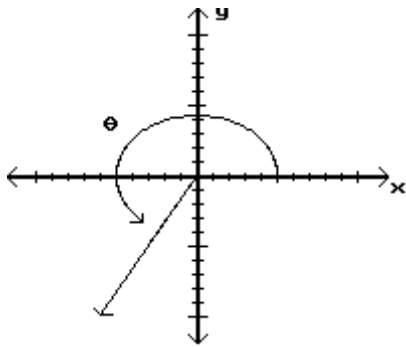
A)



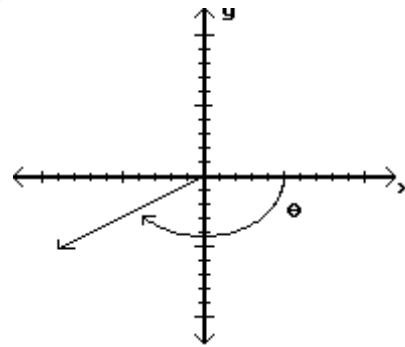
B)



C)



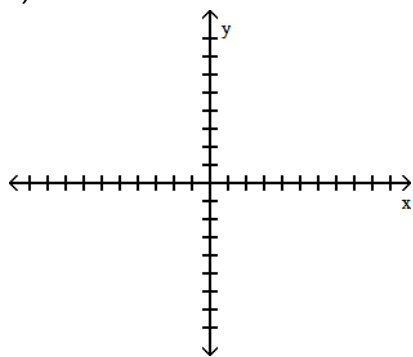
D)



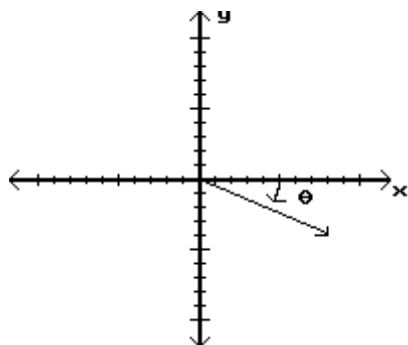
Answer: A

103) (4, -2)

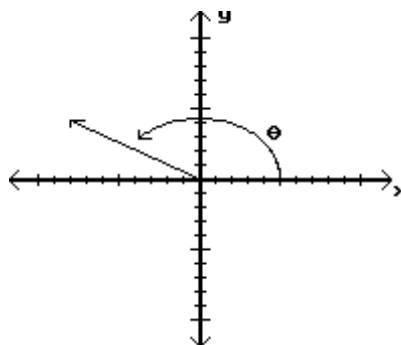
103) _____



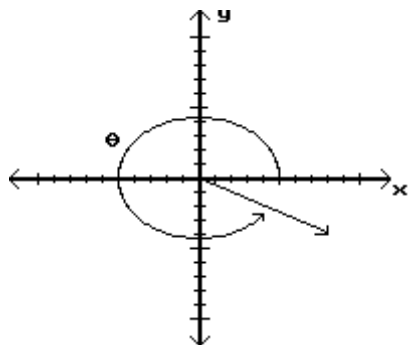
A)



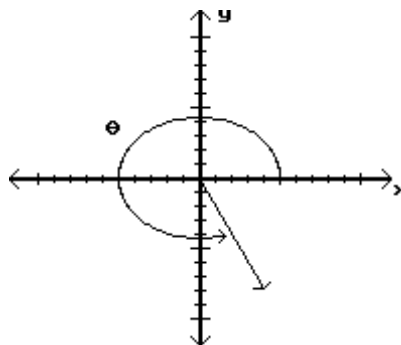
B)



C)



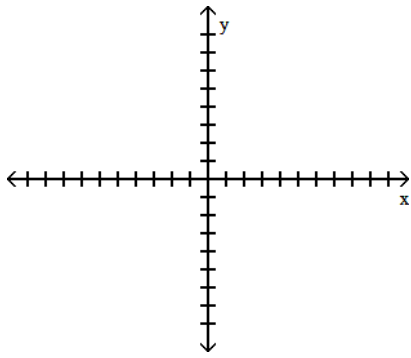
D)



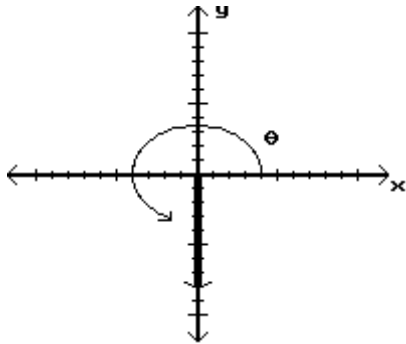
Answer: C

104) (0, -5)

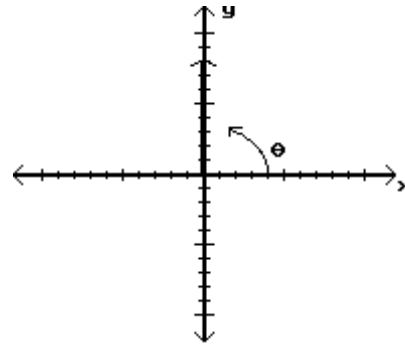
104) _____



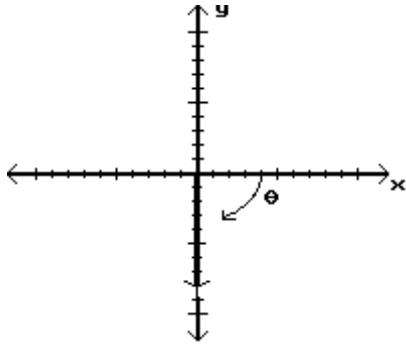
A)



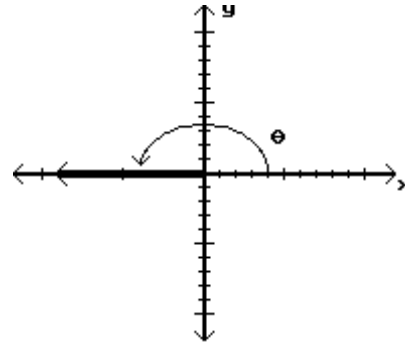
B)



C)



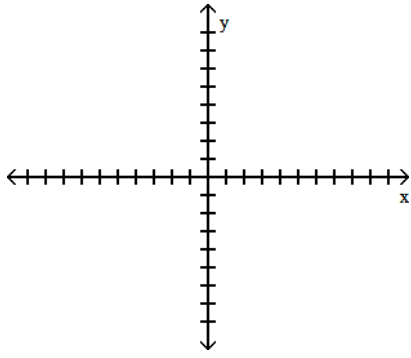
D)



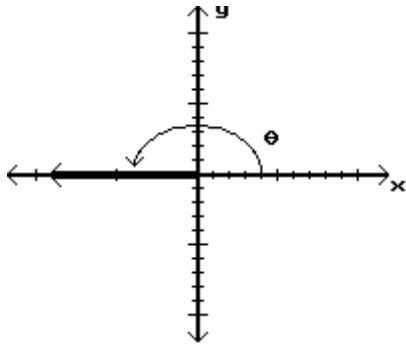
Answer: A

105) $(-4, 0)$

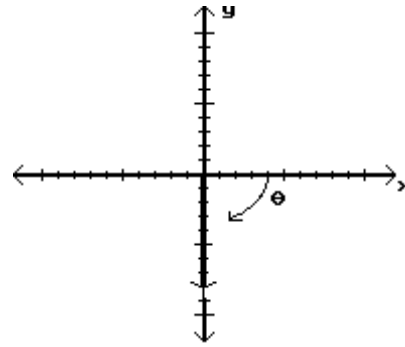
105) _____



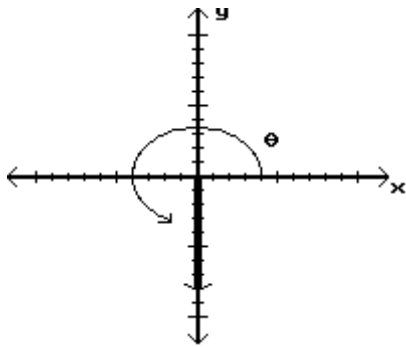
A)



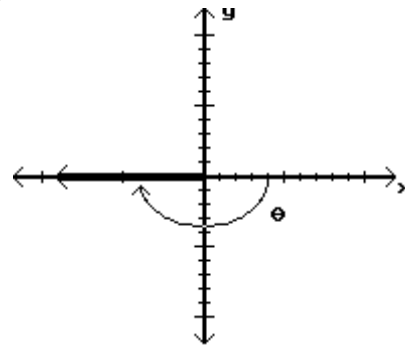
B)



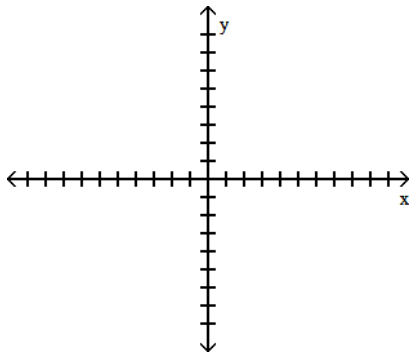
C)



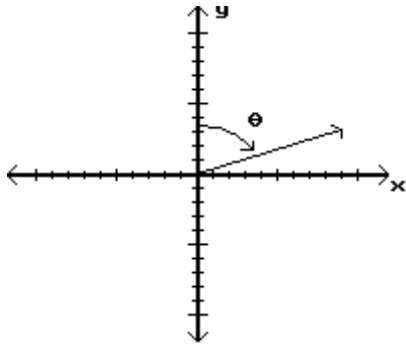
D)



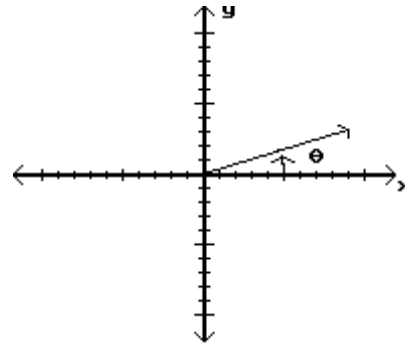
Answer: A



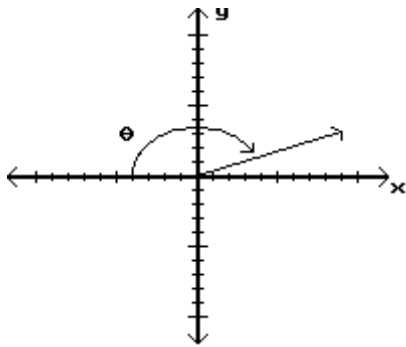
A)



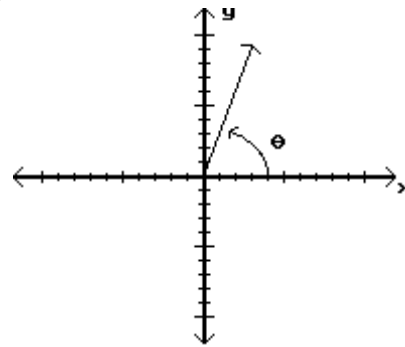
B)



C)



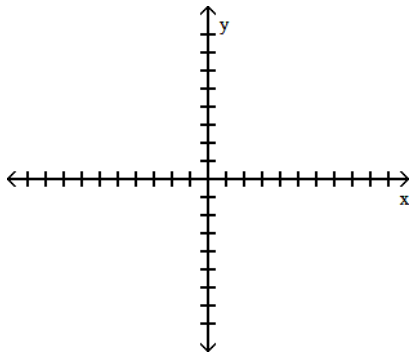
D)



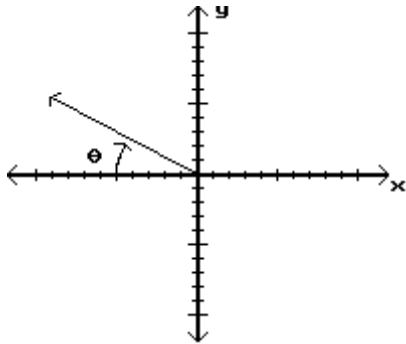
Answer: B

107) $(-5, 3)$

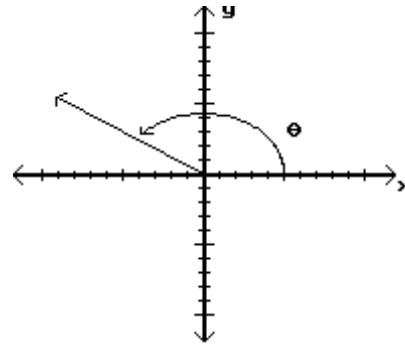
107) _____



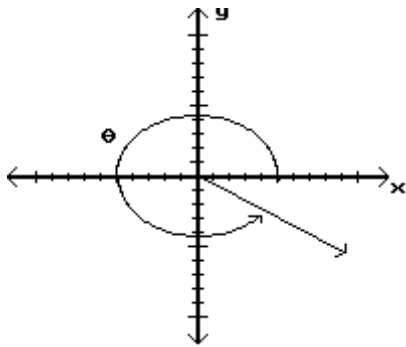
A)



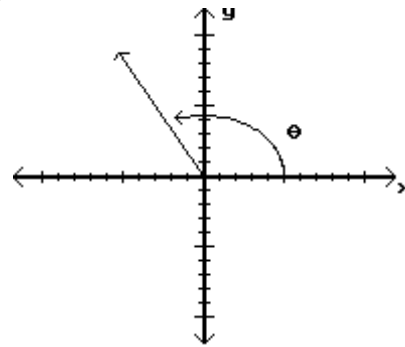
B)



C)



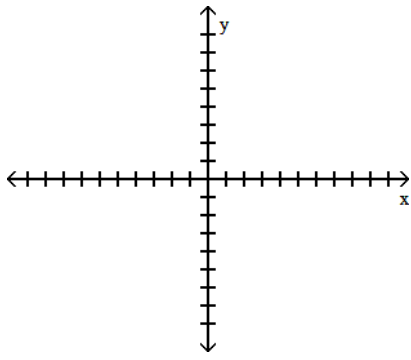
D)



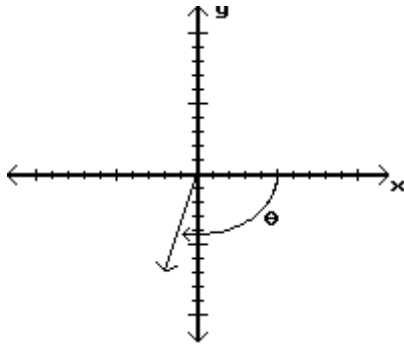
Answer: B

108) $(-2, -7)$

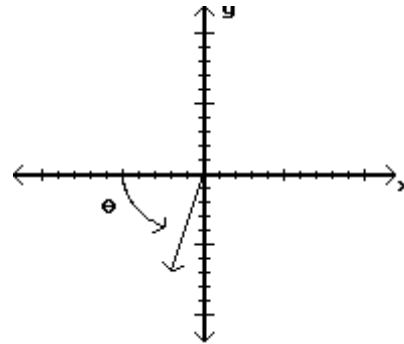
108) _____



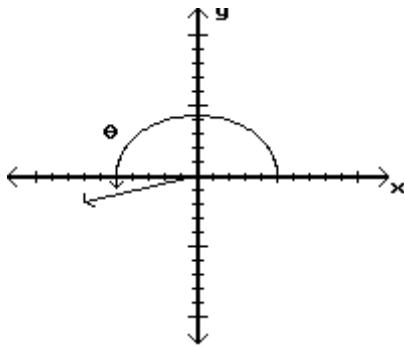
A)



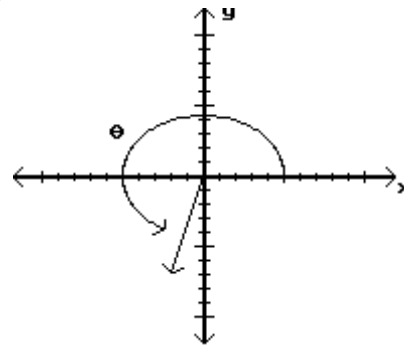
B)



C)



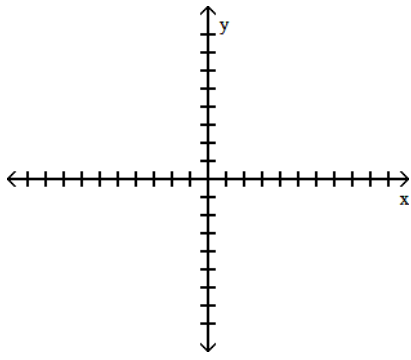
D)



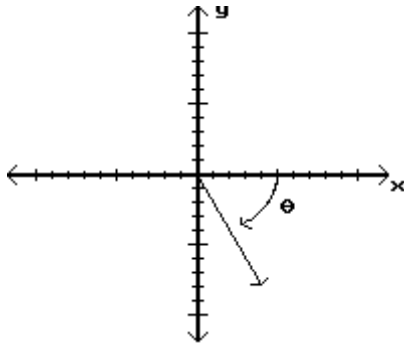
Answer: D

109) (3, -6)

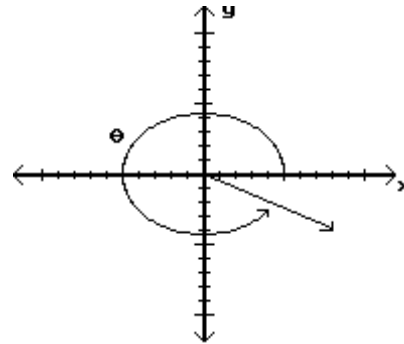
109) _____



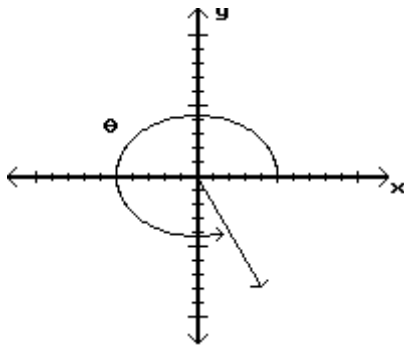
A)



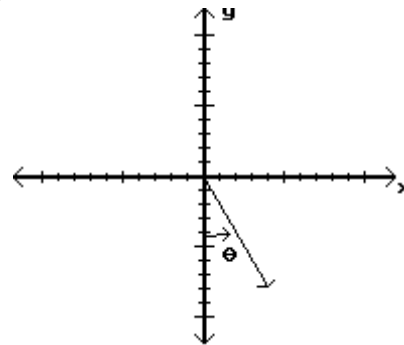
B)



C)



D)



Answer: C

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

110) (12, 16); Find $\sin \theta$.

110) _____

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

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

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

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

Answer: D

111) (6, 8); Find $\cos \theta$.

111) _____

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

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

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

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

Answer: B

112) (-20, 48); Find $\sin \theta$.

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

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

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

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

112) _____

Answer: D

113) (6, 8); Find $\csc \theta$.

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

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

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

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

113) _____

Answer: A

114) (0, -4); Find $\csc \theta$.

A) 4

B) -4

C) 1

D) -1

114) _____

Answer: D

115) (4, 5); Find $\tan \theta$.

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

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

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

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

115) _____

Answer: B

116) (6, 7); Find $\cot \theta$.

A) $\frac{7}{9}$

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

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

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

116) _____

Answer: B

If r is a positive number and the point (x, y) is in the indicated quadrant, decide whether the given ratio is positive or negative.

117) II, $\frac{r}{x}$

A) Positive

B) Negative

117) _____

Answer: B

118) III, $\frac{x}{y}$

A) Positive

B) Negative

118) _____

Answer: A

119) IV, $\frac{x}{y}$

A) Negative

B) Positive

119) _____

Answer: A

120) II, $\frac{x}{y}$

A) Positive

B) Negative

120) _____

Answer: B

121) III, $\frac{x}{r}$ 121) _____
A) Positive B) Negative
Answer: B

122) IV, $\frac{r}{y}$ 122) _____
A) Negative B) Positive
Answer: A

123) II, $\frac{y}{x}$ 123) _____
A) Positive B) Negative
Answer: B

124) III, $\frac{r}{x}$ 124) _____
A) Positive B) Negative
Answer: B

125) I, $\frac{r}{y}$ 125) _____
A) Negative B) Positive
Answer: B

An equation of the terminal side of an angle θ in standard position is given along with the quadrant of the angle θ . Find the indicated trigonometric function value of θ . Do not use a calculator.

126) $-2x + y = 0, x \geq 0$; Find $\sin \theta$. 126) _____
A) 2 B) $\frac{\sqrt{5}}{5}$ C) $\frac{1}{2}$ D) $\frac{2\sqrt{5}}{5}$
Answer: D

127) $y = 5x, x \geq 0$; Find $\tan \theta$. 127) _____
A) $\frac{1}{5}$ B) $\frac{5\sqrt{26}}{26}$ C) 5 D) $\frac{\sqrt{26}}{26}$
Answer: C

128) $2x + 5y = 0, x \geq 0$; Find $\cot \theta$. 128) _____
A) $\frac{\sqrt{29}}{2}$ B) $\frac{5}{2}$ C) $-\frac{5}{2}$ D) $-\frac{2}{5}$
Answer: C

129) $4x + 3y = 0, x \leq 0$; Find $\csc \theta$. 129) _____
A) $\frac{5}{4}$ B) $\frac{3}{4}$ C) $-\frac{4}{3}$ D) $-\frac{3}{4}$
Answer: A

130) $-3x - 5y = 0, x \leq 0$; Find $\sec \theta$. 130) _____
 A) $-\frac{5\sqrt{34}}{34}$ B) $-\frac{3}{5}$ C) $-\frac{\sqrt{34}}{5}$ D) $-\frac{5}{3}$

Answer: C

131) $-2x - 5y = 0, x \geq 0$; Find $\cos \theta$. 131) _____
 A) $-\frac{5}{2}$ B) $\frac{\sqrt{29}}{5}$ C) $\frac{5\sqrt{29}}{29}$ D) $-\frac{2}{5}$

Answer: C

Evaluate the expression.

132) $\sin(-180^\circ)$ 132) _____
 A) -1 B) Undefined C) 1 D) 0

Answer: D

133) $\cot 450^\circ$ 133) _____
 A) 0 B) $\frac{\sqrt{2}}{2}$ C) Undefined D) 1

Answer: A

134) $\sec(-90^\circ)$ 134) _____
 A) 0 B) Undefined C) -1 D) $\frac{2\sqrt{3}}{3}$

Answer: B

135) $\sec 270^\circ$ 135) _____
 A) -1 B) $\frac{2\sqrt{3}}{3}$ C) 0 D) Undefined

Answer: D

136) $\csc 90^\circ$ 136) _____
 A) 0 B) 1 C) 2 D) Undefined

Answer: B

137) $\tan(-540^\circ)$ 137) _____
 A) Undefined B) 1 C) 0 D) -1

Answer: C

138) $\sin^2 270^\circ + \cos^2 270^\circ$ 138) _____
 A) $\sqrt{3}$ B) $\sqrt{2}$ C) 2 D) 1

Answer: D

139) $\cot^2 90^\circ - \sec 180^\circ$ 139) _____
 A) 1 B) 2 C) -1 D) 0

Answer: A

140) $\cos 360^\circ - 5 \sin 90^\circ$ 140) _____
 A) -4 B) 0 C) -5 D) 1
 Answer: A

141) $5 \tan 180^\circ + 9 \csc 270^\circ$ 141) _____
 A) 0 B) -9 C) Undefined D) 9
 Answer: B

142) $\cot 90^\circ + 2 \cos 180^\circ + 6 \sec^2 360^\circ$ 142) _____
 A) 4 B) -2 C) 7 D) 8
 Answer: A

143) $7 \tan^2 180^\circ - 3 \sin^2 180^\circ + 3 \csc^2 270^\circ$ 143) _____
 A) 10 B) 3 C) -3 D) 0
 Answer: B

If n is an integer, $n \cdot 180^\circ$ represents an integer multiple of 180° , and $(2n + 1) \cdot 90^\circ$ represents an odd integer multiple of 90° . Decide whether the expression is equal to 0, 1, -1, or is undefined.

144) $\tan(n \cdot 180^\circ)$ 144) _____
 A) 0 B) -1 C) 1 D) Undefined
 Answer: A

145) $\cot(n \cdot 180^\circ)$ 145) _____
 A) 1 B) Undefined C) 0 D) -1
 Answer: B

146) $\tan((2n + 1) \cdot 90^\circ)$ 146) _____
 A) 1 B) -1 C) Undefined D) 0
 Answer: C

147) $\cos((2n + 1) \cdot 90^\circ)$ 147) _____
 A) 1 B) Undefined C) -1 D) 0
 Answer: D

Place your graphing calculator in parametric and degree modes. Set the window for $T_{\min}=0$, $T_{\max}=360$, $T_{\text{step}}=1$, $X_{\min}=-1.8$, $X_{\max}=1.8$, $X_{\text{scl}}=1$, $Y_{\min}=-1.2$, $Y_{\max}=1.2$, $Y_{\text{scl}}=1$. Set the functions to $X_1T=\cos T$, $Y_1T=\sin T$. Graph the circle of radius 1 on the screen. Use the trace feature to move a short distance around the circle.

148) For what angle T is $\cos T \approx 0.866$? (Assume $0^\circ \leq T \leq 90^\circ$.) 148) _____
 A) 28.65° B) 60° C) 0.866° D) 30°
 Answer: D

149) For what angle T is $\cos T \approx 0.642$? (Assume $0^\circ \leq T \leq 90^\circ$.) 149) _____
 A) 43.929° B) 50° C) 0.642° D) 40°
 Answer: B

150) For what angle T is $\sin T \approx 0.574$? (Assume $0^\circ \leq T \leq 90^\circ$.) 150) _____
 A) 35° B) 55° C) 46.917° D) 0.574°
 Answer: A

151) For what angle T is $\cos T \approx 0.342$? (Assume $0^\circ \leq T \leq 90^\circ$.) 151) _____
A) 70° B) 53.841° C) 20° D) 0.342°

Answer: A

152) For what angle T is $\sin T \approx 0.087$? (Assume $0^\circ \leq T \leq 90^\circ$.) 152) _____
A) 57.079° B) 85° C) 0.087° D) 5°

Answer: D

153) As the cosine increases for $0^\circ \leq T \leq 90^\circ$, does the sine increase or decrease? 153) _____
A) Increases B) Cannot determine C) Decreases

Answer: C

Use the appropriate identity to find the indicated function value. Rationalize the denominator, if applicable. If the given value is a decimal, round your answer to three decimal places.

154) $\csc \theta$, given that $\sin \theta = \frac{1}{7}$ 154) _____

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

Answer: D

155) $\cos \theta$, given that $\sec \theta = -5$ 155) _____
A) $\frac{1}{4}$ B) $\frac{1}{5}$ C) $-\frac{1}{4}$ D) $-\frac{1}{5}$

Answer: D

156) $\tan \theta$, given that $\cot \theta = -\frac{5}{6}$ 156) _____

A) $-\frac{6}{5}$ B) $\frac{11}{6}$ C) $\frac{6}{5}$ D) $-\frac{5}{6}$

Answer: A

157) $\cot \theta$, given that $\tan \theta = 0.4729$ 157) _____
A) 2.129 B) 2.108 C) 2.115 D) 2.122

Answer: C

158) $\csc \theta$, given that $\sin \theta = -0.0524$ 158) _____
A) 19.084 B) -19.084 C) 9.542 D) -9.542

Answer: B

159) $\tan \theta$, given that $\cot \theta = \frac{\sqrt{11}}{6}$ 159) _____

A) $\frac{11\sqrt{11}}{6}$ B) $\frac{6\sqrt{11}}{11}$ C) $\frac{\sqrt{11}}{11}$ D) $\frac{\sqrt{6}}{11}$

Answer: B

160) $\csc \theta$, given that $\sin \theta = \frac{\sqrt{3}}{8}$ 160) _____

A) $\frac{\sqrt{3}}{8}$ B) $\frac{8\sqrt{3}}{3}$ C) $\frac{\sqrt{3}}{3}$ D) $\frac{3\sqrt{3}}{8}$

Answer: B

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

161) $\cos (433^\circ)$ and $\sin (433^\circ)$ 161) _____

A) negative and negative B) positive and negative
C) negative and positive D) positive and positive

Answer: D

162) $\cos (-202^\circ)$ and $\tan (-202^\circ)$ 162) _____

A) positive and negative B) negative and negative
C) positive and positive D) negative and positive

Answer: B

163) $\csc (558^\circ)$ and $\cot (558^\circ)$ 163) _____

A) negative and positive B) negative and negative
C) positive and positive D) positive and negative

Answer: A

164) $\sec (657^\circ)$ and $\sin (657^\circ)$ 164) _____

A) positive and positive B) negative and positive
C) positive and negative D) negative and negative

Answer: C

Identify the quadrant for the angle θ satisfying the following conditions.

165) $\tan \theta > 0$ and $\sin \theta < 0$ 165) _____

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

Answer: A

166) $\cos \theta < 0$ and $\csc \theta < 0$ 166) _____

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

Answer: D

167) $\sin \theta > 0$ and $\cos \theta < 0$ 167) _____

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

Answer: B

168) $\cot \theta < 0$ and $\cos \theta > 0$ 168) _____

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

Answer: C

169) $\csc \theta > 0$ and $\sec \theta > 0$ 169) _____

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

Answer: C

170) $\sec \theta < 0$ and $\tan \theta < 0$ 170) _____
 A) Quadrant II B) Quadrant III C) Quadrant I D) Quadrant IV
 Answer: A

171) $\tan \theta < 0$ and $\sin \theta < 0$ 171) _____
 A) Quadrant IV B) Quadrant II C) Quadrant I D) Quadrant III
 Answer: A

172) $\cos \theta > 0$ and $\csc \theta < 0$ 172) _____
 A) Quadrant IV B) Quadrant III C) Quadrant II D) Quadrant I
 Answer: A

173) $\cot \theta > 0$ and $\sin \theta < 0$ 173) _____
 A) Quadrant IV B) Quadrant II C) Quadrant III D) Quadrant I
 Answer: C

174) $\sin \theta > 0$ and $\cos \theta > 0$ 174) _____
 A) Quadrant II B) Quadrant I C) Quadrant IV D) Quadrant III
 Answer: B

Decide whether the statement is possible or impossible for an angle θ .

175) $\sin \theta = 4.14$ 175) _____
 A) Possible B) Impossible
 Answer: B

176) $\tan \theta = 2.19$ 176) _____
 A) Possible B) Impossible
 Answer: A

177) $\sec \theta = -0.6$ 177) _____
 A) Impossible B) Possible
 Answer: A

178) $\cos \theta = \frac{5}{7}$ and $\sec \theta = \frac{7}{5}$ 178) _____
 A) Impossible B) Possible
 Answer: B

179) $\sin \theta = 0.8$ and $\csc \theta = -0.8$ 179) _____
 A) Impossible B) Possible
 Answer: A

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

180) Find $\sin \theta$, given that $\cos \theta = \frac{2}{3}$ and θ is in quadrant IV. 180) _____
 A) $-\frac{\sqrt{5}}{3}$ B) $-\frac{3}{2}$ C) $\frac{5}{4}$ D) $\frac{3\sqrt{7}}{7}$
 Answer: A

181) Find $\csc \theta$, given that $\sin \theta = -\frac{2}{3}$ and θ is in quadrant IV. 181) _____

- A) $\frac{5}{4}$ B) $-\frac{\sqrt{7}}{9}$ C) $-\frac{3}{2}$ D) $\frac{3\sqrt{7}}{7}$

Answer: C

182) Find $\tan \theta$, given that $\sin \theta = \frac{3}{4}$ and θ is in quadrant II. 182) _____

- A) $-\frac{\sqrt{7}}{9}$ B) $-\frac{3\sqrt{7}}{7}$ C) $-\frac{3}{2}$ D) $\frac{5}{4}$

Answer: B

183) Find $\sec \theta$, given that $\tan \theta = \frac{3}{4}$ and θ is in quadrant I. 183) _____

- A) $\frac{3\sqrt{7}}{7}$ B) $\frac{5}{4}$ C) $-\frac{3}{2}$ D) $-\frac{\sqrt{7}}{9}$

Answer: B

184) Find $\cot \theta$, given that $\tan \theta = \frac{\sqrt{7}}{3}$ and θ is in quadrant III. 184) _____

- A) $\frac{3\sqrt{7}}{7}$ B) $-\frac{3}{2}$ C) $\frac{5}{4}$ D) $-\frac{\sqrt{7}}{9}$

Answer: A

185) Find $\sec \theta$, given that $\tan \theta = 0.26794919$ and θ is in quadrant I. 185) _____

- A) -1.0352762 B) 1.0352762 C) 1.1260325 D) -1.1260325

Answer: B

186) Find $\tan \theta$, given that $\cos \theta = -0.40673664$ and θ is in quadrant II. 186) _____

- A) 2.2460368 B) 2.6541818 C) -2.6541818 D) -2.2460368

Answer: D

187) Find $\sin \theta$, given that $\cos \theta = \frac{2}{9}$ and $\tan \theta < 0$. 187) _____

- A) $-\frac{\sqrt{77}}{2}$ B) $-\frac{9}{2}$ C) $-\sqrt{77}$ D) $-\frac{\sqrt{77}}{9}$

Answer: D

188) Find $\tan \theta$, given that $\sec \theta = \frac{9}{4}$ and θ is in quadrant IV. 188) _____

- A) $-\frac{\sqrt{65}}{4}$ B) $-\sqrt{65}$ C) $-\frac{9}{4}$ D) $-\frac{\sqrt{65}}{9}$

Answer: A

- 189) Find $\cot \theta$, given that $\csc \theta = -\frac{3}{2}$ and θ is in quadrant III. 189) _____
- A) $-\frac{\sqrt{5}}{3}$ B) $\frac{\sqrt{5}}{2}$ C) $-\frac{3\sqrt{5}}{5}$ D) $-\frac{2\sqrt{5}}{5}$
- Answer: B
- 190) Find $\sin \theta$, given that $\cos \theta = \frac{2}{3}$ and θ is in quadrant IV. 190) _____
- A) $-\frac{\sqrt{5}}{3}$ B) $-\frac{3}{2}$ C) $-\frac{\sqrt{5}}{2}$ D) $-\sqrt{5}$
- Answer: A
- 191) Find $\cos \theta$, given that $\tan \theta = -\frac{2}{3}$ and θ is in quadrant II. 191) _____
- A) $-\frac{3\sqrt{13}}{13}$ B) $\frac{\sqrt{13}}{2}$ C) $-\frac{\sqrt{13}}{3}$ D) $\frac{3\sqrt{13}}{13}$
- Answer: A
- 192) Find $\cos \theta$, given that $\tan \theta = -\frac{8}{3}$ and $\sin \theta > 0$. 192) _____
- A) $\frac{3\sqrt{73}}{73}$ B) $-\frac{3\sqrt{73}}{73}$ C) $-\frac{\sqrt{73}}{3}$ D) $\frac{\sqrt{73}}{8}$
- Answer: B
- 193) Find $\csc \theta$, given that $\cot \theta = -\frac{3}{10}$ and $\cos \theta < 0$. 193) _____
- A) $\frac{\sqrt{109}}{10}$ B) $-\frac{\sqrt{109}}{3}$ C) $\frac{3\sqrt{109}}{109}$ D) $-\frac{3\sqrt{109}}{109}$
- Answer: A
- 194) Find $\cot \theta$, given that $\cos \theta = \frac{21}{29}$ and θ is in quadrant IV. 194) _____
- A) $\frac{29}{21}$ B) $-\frac{21\sqrt{2}}{4}$ C) $-\frac{20}{21}$ D) $-\frac{21}{20}$
- Answer: D
- 195) Find $\cos \theta$, given that $\sin \theta = -\frac{5}{13}$ and θ is in quadrant III. 195) _____
- A) $\frac{12}{5}$ B) $-\frac{12}{13}$ C) $-\frac{5}{12}$ D) $-\frac{13}{5}$
- Answer: B
- 196) Find $\csc \theta$, given that $\cot \theta = -\sqrt{15}$ and θ is in quadrant II. 196) _____
- A) -4 B) $\frac{1}{4}$ C) $-\frac{1}{4}$ D) 4
- Answer: D