

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

- 1) _____
 A) _____ B) _____ C) _____ D) _____

Write a signed number for the statement.

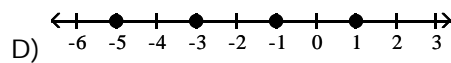
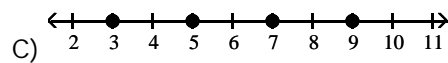
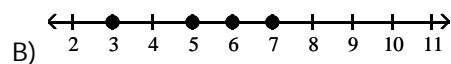
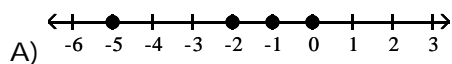
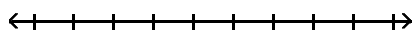
- 2) 111 feet above sea level
 A) -111 B) 111
- 3) 15° below zero
 A) -15 B) 15
- 4) \$450 profit
 A) 450 B) -450
- 5) \$1582 out of debt
 A) 1582 B) -1582
- 6) The team scored 10 points.
 A) -10 B) 10

Interpret what the negative number means in the real-life situation.

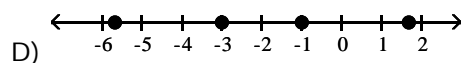
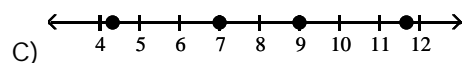
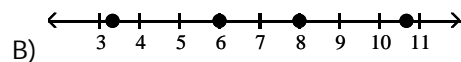
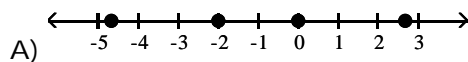
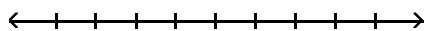
- 7) -32 yards during a football play
 A) Loss of 32 yards B) Gain of 32 yards
- 8) Performance of a certain stock yesterday: -4.25 points
 A) Gain of 4.25 points yesterday B) Loss of 4.25 points yesterday

Graph the numbers on a number line.

- 9) -5, -3, -1, 1

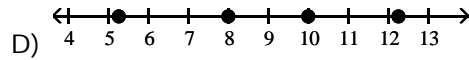
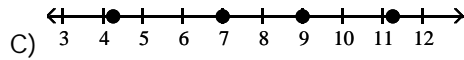
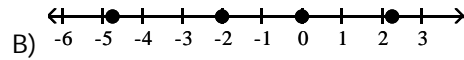
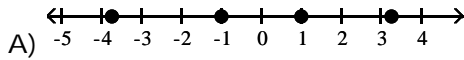
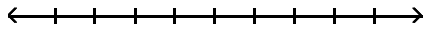


- 10) $-\frac{17}{3}$, -3, -1, $\frac{5}{3}$



11) $-\frac{19}{4}, -2, 0, \frac{9}{4}$

11) _____



Fill in the blank with < or >.

12) -7 ___ -9

A) >

B) <

12) _____

13) -5 ___ -7

A) >

B) <

13) _____

14) -3 ___ 6

A) >

B) <

14) _____

15) -4 ___ 4

A) <

B) >

15) _____

16) 4.2 ___ 4.3

A) >

B) <

16) _____

17) -7.8 ___ -7.6

A) >

B) <

17) _____

18) -5.3 ___ -5.4

A) <

B) >

18) _____

19) $-\frac{21}{2}$ ___ $-\frac{23}{2}$

A) >

B) <

19) _____

Solve the problem.

20) Your friends Joe and Tanya are having a debate. Joe says that -13 is bigger than -10 and uses money as an analogy: "If I owe \$13, I have a larger debt than if I owe \$10." Tanya responds and argues that -10 is larger than -13 because the bigger the debt, the less money the person has. They ask you to settle their debate. Which number is larger, -13 or -10 ?

A) -10

B) -13

20) _____

Find (a) the opposite and (b) the absolute value of the number.

21) -9.4

A) (a) 9.4
(b) -9.4

B) (a) -9.4
(b) -9.4

C) (a) 9.4
(b) 9.4

D) (a) -9.4
(b) 9.4

21) _____

22) 14.6 _____

A) (a) 14.6 B) (a) -14.6 C) (a) 14.6 D) (a) -14.6
 (b) 14.6 (b) 14.6 (b) -14.6 (b) -14.6

23) $\frac{7}{13}$ _____

A) (a) $\frac{7}{13}$ B) (a) $\frac{7}{13}$ C) (a) $-\frac{7}{13}$ D) (a) $-\frac{7}{13}$
 (b) $-\frac{7}{13}$ (b) $\frac{7}{13}$ (b) $-\frac{7}{13}$ (b) $\frac{7}{13}$

24) $-\frac{13}{5}$ _____

A) (a) $\frac{13}{5}$ B) (a) $-\frac{13}{5}$ C) (a) $\frac{13}{5}$ D) (a) $-\frac{13}{5}$
 (b) $\frac{13}{5}$ (b) $\frac{13}{5}$ (b) $-\frac{13}{5}$ (b) $-\frac{13}{5}$

Simplify.

25) $-|-7|$ _____

A) 14 B) -7 C) 7 D) 0

26) $-|22|$ _____

A) -44 B) 22 C) -22 D) 0

Solve the problem.

27) The table gives the change in producer price indexes. _____

Commodity	Change from January - June	Change from July - December
Food	5.40	-6.15
Apparel	-5.80	6.65
Shelter	-1.21	8.09

Which has a greater absolute value, the change for food from January to June or from July to December?

- A) January to June B) July to December

28) The table gives the change in producer price indexes. _____

Commodity	Change from January - June	Change from July - December
Food	5.40	-6.05
Apparel	-5.85	6.35
Shelter	-1.21	8.09

Which has a greater absolute value, the change for apparel from January to June or from July to December?

- A) January to June B) July to December

Add or subtract.

29) $14 + (-10)$

A) -24

B) -4

C) 4

D) 24

29) _____

30) $-5 + 2$

A) 7

B) -7

C) 3

D) -3

30) _____

31) $-16 + (-6)$

A) 22

B) -10

C) 10

D) -22

31) _____

32) $-18.5 + (-8.2)$

A) 10.3

B) -10.3

C) -26.7

D) 26.7

32) _____

33) $-669 + 700$

A) 31

B) 1369

C) -1369

D) -31

33) _____

34) $\frac{3}{4} + \left(-\frac{9}{16}\right)$

A) $\frac{3}{64}$

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

C) $\frac{3}{16}$

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

34) _____

35) $-\frac{9}{16} + \frac{3}{4}$

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

B) $\frac{3}{64}$

C) $\frac{3}{16}$

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

35) _____

36) $13\frac{1}{8} + \left(-7\frac{3}{8}\right)$

A) $5\frac{2}{4}$

B) $19\frac{3}{4}$

C) $20\frac{3}{4}$

D) $5\frac{3}{4}$

36) _____

37) $-9\frac{5}{9} + 19\frac{2}{9}$

A) $28\frac{2}{3}$

B) $27\frac{2}{3}$

C) $9\frac{1}{3}$

D) $9\frac{2}{3}$

37) _____

38) $-1 - 7$

A) 6

B) -8

C) 8

D) -6

38) _____

39) $-9 - (-2)$

A) 7

B) -11

C) -7

D) 11

39) _____

40) $13 - (-4)$

A) 17

B) 9

C) -17

D) -9

40) _____

$$41) \frac{1}{10} - \left(-\frac{1}{5} \right)$$

A) $\frac{1}{10}$ B) $-\frac{1}{10}$ C) $-\frac{3}{10}$ D) $\frac{3}{10}$ 41) _____

$$42) -\frac{2}{3} - \frac{1}{2}$$

A) $-\frac{1}{6}$ B) $-\frac{7}{6}$ C) $\frac{7}{6}$ D) $-\frac{5}{6}$ 42) _____

$$43) -\frac{3}{4} - \left(-\frac{5}{8} \right)$$

A) $\frac{1}{8}$ B) -1 C) $-\frac{1}{8}$ D) $-\frac{1}{4}$ 43) _____

$$44) -2.3 - 13.1$$

A) 10.8 B) -10.8 C) 15.4 D) -15.4 44) _____

$$45) -6.0 - (-3.8)$$

A) 2.2 B) 9.8 C) -9.8 D) -2.2 45) _____

Perform the operations, the determine whether the statement is true or false.

$$46) 1 + 10 + (-6) = 5$$

A) True B) False 46) _____

$$47) -13 + 11 + (-10) = 14$$

A) True B) False 47) _____

$$48) -5 - (-2) - 10 + 5 = 8$$

A) False B) True 48) _____

Write a numerical expression for the phrase and simplify it.

$$49) \text{The sum of } -13 \text{ and } 7 \text{ and } 2$$

A) $-13 - 7 - 2; -22$ B) $7 + 2 - 13; 18$ C) $-13 + 7 + 2; -4$ D) $13 + 7 + 2; 22$ 49) _____

$$50) \text{The sum of } -3 \text{ and } -11, \text{ increased by } -4$$

A) $[3 + 11] + 4; 18$ B) $[(-3) + (-11)] + (-4); -12$ 50) _____
 C) $[(-3) + (-11)] + 4; -10$ D) $[(-3) + (-11)] + (-4); -18$

$$51) 10 \text{ added to the sum of } -14 \text{ and } 7$$

A) $-10 - 14 - 7; -31$ B) $10 + 14 + 7; 31$ 51) _____
 C) $10 + [(-14) + 7]; 3$ D) $10 + 7 - 14; 11$

Solve.

$$52) \text{A tablet was discovered by archaeologists in 1980. The date inscribed on the tablet was 65 B.C. How old was the tablet when it was discovered? Write the computation using signed numbers.}$$

A) $1980 + 65 = 1915 \text{ years old}$ B) $1980 + (-65) = 1915 \text{ years old}$ 52) _____
 C) $1980 - (-65) = 2045 \text{ years old}$ D) $(-65) - (-1980) = 2045 \text{ years old}$

- 53) The balance of your checking account was \$78.25. You then wrote a check for \$124, which cleared. What was the new balance? Write the computation using signed numbers. 53) _____
- A) $78.25 - 124 = -\$45.75$ B) $78.25 - (-124) = -\$202.25$
 C) $124 - (-78.25) = \$202.25$ D) $124 - 78.25 = \$45.75$

Solve the problem.

- 54) The stock market gained 34 points on Tuesday and lost 20 points on Wednesday. It had closed on Monday at 2684 points. Where did the market close on Wednesday? 54) _____
- A) 2670 points B) 2630 points C) 2698 points D) 2738 points
- 55) During one year 24 new employees began work at Daniel's Manufacturing Company and 14 employees left. At the beginning of the year there were 248 employees. What was the number of employees at the end of the year? 55) _____
- A) 210 employees B) 258 employees C) 272 employees D) 286 employees
- 56) A football team gained 10 yards on one play, lost 22 yards on another, and gained 32 yards on the last play of the first half. They had already gained 313 yards during the half. What was the total yardage gain for the first half? 56) _____
- A) 355 yards B) 377 yards C) 333 yards D) 293 yards
- 57) Nikki is fishing from a bank 35 feet above water level. In this location, the fish tend to feed at 45 feet below the surface. How long must Nikki's fish line be to reach the fish? 57) _____
- A) 10 feet B) -35 feet C) -10 feet D) 80 feet
- 58) The temperature at the South pole was -14° at 8 am. At 3 pm, it was 19° . By how many degrees did the temperature rise? 58) _____
- A) 5° B) -33° C) -5° D) 33°

Simplify.

- 59) $-6(17)$ 59) _____
- A) 60 B) -102 C) 13 D) -42
- 60) $-4(-4)$ 60) _____
- A) 16 B) 26 C) -16 D) -26
- 61) $-7(74)$ 61) _____
- A) 501 B) -498 C) 618 D) -518
- 62) $-43(0)$ 62) _____
- A) -43 B) 0 C) 43 D) 1
- 63) $-\frac{5}{4}\left(-\frac{6}{25}\right)$ 63) _____
- A) $-\frac{1}{5}$ B) $\frac{5}{3}$ C) $\frac{3}{10}$ D) $\frac{3}{5}$
- 64) $10(-9)(-8)$ 64) _____
- A) -720 B) -82 C) -7 D) 720

- 65) $\frac{-52}{4}$ 65) _____
 A) $-\frac{1}{13}$ B) 13 C) -23 D) -13
- 66) $\frac{0}{-23}$ 66) _____
 A) 23 B) 1 C) Undefined D) 0
- 67) $-\frac{5}{7} \div \left(-\frac{4}{7}\right)$ 67) _____
 A) $\frac{5}{4}$ B) $-\frac{5}{4}$ C) $\frac{4}{5}$ D) $-\frac{20}{49}$
- 68) $\frac{-8}{0}$ 68) _____
 A) 8 B) -8 C) 0 D) Undefined
- 69) $\frac{-3(-9)}{4 - (-5)}$ 69) _____
 A) 3 B) -27 C) -3 D) 27

Solve the problem.

- 70) At the end of last year, Widgets Unlimited, Inc. posted a net income of -\$176.6 billion. If this continues, what would its income be after three years? 70) _____
 A) -\$5298 billion B) -\$529.8 billion C) \$529.8 billion D) -\$179.6 billion
- 71) Chris lost \$9.49 playing poker in one week. If this continued, what would be his net winnings or losses after five weeks? 71) _____
 A) \$47.45 B) -\$474.50 C) -\$47.45 D) -\$4745.00
- 72) There is a 3-degree drop in temperature for every thousand feet that an airplane climbs into the sky. If the temperature on the ground is 46 degrees, what will be the temperature when the plane reaches an altitude of 26,000 feet? 72) _____
 A) 20 degrees B) -32 degrees C) 32 degrees D) -20 degrees
- 73) At the local recycling center, employees are paid every two weeks. If Jeremy was paid \$14,040 last year, how much did he make each pay period? 73) _____
 A) \$810 B) \$1080 C) \$540 D) \$270
- 74) In 10 weeks, the value of Bob Treatman's day trading account decreased by \$260. What was the average weekly change in the value of the account? 74) _____
 A) -\$28 per week B) \$24 per week C) -\$32 per week D) -\$26 per week

Answer the question.

- 75) Tell whether the value of the given expression is positive, negative or cannot be determined. 75) _____
 Positive - (Negative / Positive)
 A) Cannot be determined B) Negative C) Positive

- 76) Tell whether the value of the given expression is positive, negative or cannot be determined. 76) _____
 (Negative - Positive) / Positive
 A) Positive B) Negative C) Cannot be determined

Find the average of the numbers.

- 77) 14, 11, 3, 1, 11 77) _____
 A) 41 B) 8 C) 10 D) 9
- 78) 14, 3, 13, 19, 16, 14, 8, 17 78) _____
 A) 14.86 B) 13 C) 12 D) 31
- 79) -1, 5, 5, 5, 6 79) _____
 A) 3 B) 4 C) 5 D) 3.3
- 80) Find the average of the list of Fahrenheit temperatures. 80) _____
 -15°, 3°, -8°, 7°, -9°, 2°, and -1°F
 A) 1°F B) -3°F C) -1°F D) -2°F
- 81) Find the average of the list of Celsius temperatures. 81) _____
 -12°, -10°, -1°, -3°, -8°, and -8°C
 A) -5°C B) -7°C C) -8°C D) -6°C

Solve the problem.

- 82) The five sales people at Southwest Appliances earned commissions last year of \$14,000, \$29,000, \$40,000, \$18,000, and \$33,000. Find the mean commission. 82) _____
 A) \$28,140 B) \$29,480 C) \$25,460 D) \$26,800
- 83) To get a C in history, Nandan must have a mean score of 73 on four tests. Scores on the first three tests were 65, 76, and 60. What is the lowest score that Nandan can get on the last test and still receive a C? 83) _____
 A) 18 B) 91 C) 67 D) 69
- 84) To get a B in biology, Katie must have a mean score of 81 on five lab reports. Scores on the first four lab reports were 93, 78, 78, and 82. What is the lowest score that Katie can get on the last lab report and still receive a B? 84) _____
 A) 71 B) 74 C) 82 D) 83
- 85) To get an A in biology, Fred must have a mean score of 89 on six quizzes. Scores on the first five quizzes were 92, 87, 88, 93, and 96. What is the lowest score that Fred can get on the last quiz and still receive an A? 85) _____
 A) 85 B) 90 C) 78 D) 91
- 86) Jeremy's car got 306 miles (highway) on 9 gallons of gasoline. What was the average number of miles expected per gallon? 86) _____
 A) 33 mpg B) 35 mpg C) 36 mpg D) 34 mpg
- 87) A data set contains the numbers 6, 8, 5, 12, and 9. The average of these five numbers is 8. Add 7 to each of the data values and find the new average. 87) _____
 A) 8 B) 16 C) 10 D) 15

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Correct the statement using appropriate units.

88) The city's elevation is 326 square feet below sea level.

88) _____

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

Write the expression using exponents.

89) $8 \cdot 8 \cdot 8 \cdot 8 \cdot 8$

A) 8^6

B) 6^8

C) 48

D) 8^5

89) _____

90) $x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x \cdot x$

A) x^8

B) 8

C) $8x$

D) 8^x

90) _____

91) $(-8)(-8)(-8)(-8)(-8)(-8)(-8)$

A) $(-8)^7$

B) $(-8)^6$

C) 8^6

D) 8^7

91) _____

92) $(-6x)(-6x)(-6x)(-6x)$

A) $(-6x)^4$

B) $-24x$

C) $-6x^4$

D) $(-6x)^4$

92) _____

93) $\left(\frac{5}{6}\right)\left(\frac{5}{6}\right)\left(\frac{5}{6}\right)\left(\frac{5}{6}\right)\left(\frac{5}{6}\right)\left(\frac{5}{6}\right)$

A) $\left(\frac{5}{6}\right)^5$

B) $\left(\frac{5}{6}\right)^6$

C) $6^{5/6}$

D) $\left(\frac{5}{6}\right)^7$

93) _____

Identify the base and the exponent for the exponential expression.

94) 8^7

A) Base is 8; exponent is 7.

B) Base is 7; exponent is 56.

C) Base is 7; exponent is 8.

D) Base is 56; exponent is 7.

94) _____

95) -15^{14}

A) Base is 14; exponent is -15.

B) Base is 14; exponent is 15.

C) Base is 15; exponent is 14.

D) Base is -15; exponent is 14.

95) _____

96) $(-8)^{12}$

A) Base is 12; exponent is -8.

B) Base is 8; exponent is 12.

C) Base is -8; exponent is 12.

D) Base is 12; exponent is 8.

96) _____

97) $(12x)^{11}$

A) Base is $12x$; exponent is 11.

B) Base is x ; exponent is 11.

C) Base is 11; exponent is x .

D) Base is 11; exponent is $12x$.

97) _____

98) $7x^9$

A) Base is 9; exponent is x .

B) Base is 9; exponent is $7x$.

C) Base is x ; exponent is 9.

D) Base is $7x$; exponent is 9.

98) _____

Use the product rule to simplify the expression. Write the result using exponents.

- 99) $x^2 \cdot x^5$ 99) _____
 A) x^2 B) x^8 C) x^7 D) x^5
- 100) $9^8 \cdot 9^7$ 100) _____
 A) 81^{56} B) 9^{15} C) 9^{56} D) 81^{15}
- 101) $(-5p^6)(3p^2)$ 101) _____
 A) $-15p^{12}$ B) $-15p^8$ C) $15p^8$ D) $15p^{12}$
- 102) $a^9 \cdot a^4 \cdot a^7$ 102) _____
 A) a^{11} B) a^{43} C) a^{13} D) a^{20}

Use the power rules for exponents to simplify. Write the answer in exponential form.

- 103) $(5^2)^3$ 103) _____
 A) 5^6 B) 25^6 C) 25^5 D) 5^5
- 104) $(n^9)^6$ 104) _____
 A) $(n^6)^{54}$ B) n^{15} C) $9n^6$ D) n^{54}
- 105) $(3t)^5$ 105) _____
 A) $3t^5$ B) 3^5t^5 C) 3^5t D) $15t^5$
- 106) $9(rt)^9$ 106) _____
 A) $9r^9t^9$ B) $9rt^9$ C) $9r^9t$ D) $9^9r^9t^9$
- 107) $(8rt)^6$ 107) _____
 A) $8r^6t^6$ B) 8^6rt^6 C) 8^6r^6t D) $8^6r^6t^6$
- 108) $\left(\frac{5}{8}\right)^6$ 108) _____
 A) $\frac{30}{48}$ B) $\frac{11}{14}$ C) $\frac{5^6}{8^6}$ D) 13^6
- 109) $\left(\frac{y}{z}\right)^7$ ($z \neq 0$) 109) _____
 A) $\frac{y^7}{z^7}$ B) $\frac{y}{z^7}$ C) $\frac{7y}{7z}$ D) $\frac{y^7}{z}$

Simplify the expression.

- 110) $6^0 + 11^0$ 110) _____
 A) 1 B) 0 C) 2 D) 17

111) $z^0 + 10^0$ 111) _____
 A) 11 B) $z + 10$ C) 2 D) 0

112) $-2y^0$ 112) _____
 A) 1 B) -1 C) -2 D) 0

113) $(8b)^0$ 113) _____
 A) b B) 0 C) 8 D) 1

Divide.

114) $\frac{15k^3}{5k}$ 114) _____
 A) $10k^2$ B) 10 C) 3k D) $3k^2$

115) $\frac{6x^9}{-2x^3}$ 115) _____
 A) $-3x^{12}$ B) $-3x^6$ C) $3x^6$ D) $3x^{12}$

116) $\frac{a^8}{a^3}$ 116) _____
 A) a^{83} B) a^5 C) 83 D) a^{11}

117) $\frac{18x^5}{9x^2}$ 117) _____
 A) $2x^3$ B) $9x^3$ C) $2x^7$ D) $2x^{52}$

Solve the problem.

118) The formula $T = 2\pi\sqrt{\frac{L}{g}}$ gives the time T for a full cycle of a pendulum's swing where the 118) _____
 pendulum's length in meters is $L = 23$, and g is the acceleration due to gravity, 9.8 m/sec^2 . When T is calculated from this formula, what will the units be?
 A) sec B) m/sec C) m D) sec^2

Simplify.

119) $\frac{9y^5 x^8}{y^7 x^6}$ 119) _____
 A) $\frac{9x^2}{x^2}$ B) $\frac{9x^2}{y^2}$ C) 1 D) $\frac{9}{x}$

120) $(4p^4 s^4)^4 (s^3)$ 120) _____
 A) $4p^{16} s^{19}$ B) $256p^8 s^{11}$ C) $256p^8 s^{48}$ D) $256p^{16} s^{19}$

121) $2^0(2x^5y^3)^2$

A) $2x^7y^5$

B) $4x^{10}y^6$

C) $2x^{10}y^6$

D) $4x^7y^5$

121) _____

Solve the problem using a basic geometric formula.

122) Find the perimeter.

122) _____

cm

23 cm

A) 126.5 cm

B) 45 cm

C) 55 cm

D) 56 cm

123) Find the perimeter.

123) _____

10 in.

12 in

12 in.

10 in.

A) 4 in.

B) 40 in.

C) 44 in.

D) 22 in.

124) Find the area.

124) _____

15 m

23 m

A) 690 m^2

B) 38 m^2

C) 345 m^2

D) 76 m^2

125) Find the area.

125) _____

72 ft

72 ft



A) 5184 ft^2

B) 144 ft^2

C) 288 ft^2

D) $10,368 \text{ ft}^2$

126) Find the area of a square measuring 80 km on a side.

126) _____

A) 320 km^2

B) 6400 km^2

C) 160 km^2

D) $12,800 \text{ km}^2$

127) Find the area.

127) _____

38 yd

A) 387.5 yd^2

B) 950 yd^2

C) 312.5 yd^2

D) 475 yd^2

128) Find the area.

128) _____

- 46.5 ft
- A) 883.5 ft^2 B) 1767 ft^2 C) 722 ft^2 D) 779 ft^2

129) Find the perimeter and area.

129) _____

A rectangle 5 in. by 10 in.

- A) $P = 30 \text{ in.}$, $A = 50 \text{ in.}^2$ B) $P = 15 \text{ in.}$, $A = 100 \text{ in.}^2$
C) $P = 20 \text{ in.}$, $A = 100 \text{ in.}^2$ D) $P = 10 \text{ in.}$, $A = 50 \text{ in.}^2$

130) Find the perimeter and area.

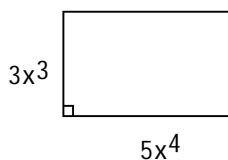
130) _____

A square with side 6.6 mi

- A) $P = 87.12 \text{ mi}$, $A = 43.56 \text{ mi}^2$ B) $P = 13.2 \text{ mi}$, $A = 87.12 \text{ mi}^2$
C) $P = 26.4 \text{ mi}$, $A = 43.56 \text{ mi}^2$ D) $P = 36.4 \text{ mi}$, $A = 87.12 \text{ mi}^2$

131) Use the formula $A = lw$ to find the area of the rectangle.

131) _____

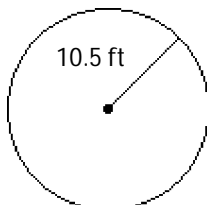


- A) $8x^{12}$ B) $15x^{12}$ C) $8x^7$ D) $15x^7$

Solve the problem, using 3.14 for π . Round to nearest tenth unless instructed differently.

132) Find the circumference.

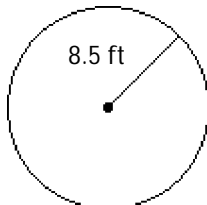
132) _____



- A) 33.0 ft B) 13.3 ft C) 65.9 ft D) 346.2 ft

133) Find the area of the circle.

133) _____



- A) 226.9 ft^2 B) 907.5 ft^2 C) 53.4 ft^2 D) 106.8 ft^2

134) Find the circumference and area of a circle having the given diameter. 134) _____

$d = 9$ cm

- A) 14.1 cm; 56.5 cm^2 B) 28.3 cm; 28.3 cm^2
C) 28.3 cm; 63.6 cm^2 D) 14.1 cm; 254.3 cm^2

135) A company is installing a circular fountain in the lobby of their new building and want to line the edge with a decorative trim. The radius of the fountain is 7 meters. How much trim are they going to need to line the fountain? 135) _____

- A) 22 m B) 49 m C) 44 m D) 42 m

136) The radius of a rubber ice-hockey puck is 1.7 inches. What is the surface area of one flat side of the puck? 136) _____

- A) 36.3 in.^2 B) 4.5 in.^2 C) 9.1 in.^2 D) 10.7 in.^2

Find the volume of the solid. When necessary, use 3.14 as the approximate value of π , and round as instructed.

137) A sphere with diameter 3 ft. Round to the nearest tenth. 137) _____

- A) 14.1 ft^3 B) 9.4 ft^3 C) 113.0 ft^3 D) 7.9 ft^3

138) 138) _____

29 ft

29 ft

- A) 87 ft^3 B) $24,389 \text{ ft}^3$ C) 1682 ft^3 D) 841 ft^3

139) Find the volume of a cylinder with radius 9 cm and height 8 cm. Round to the nearest tenth. 139) _____

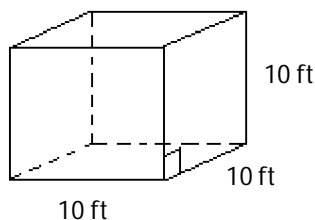
- A) 480.4 cm^3 B) 734.8 cm^3 C) 960.8 cm^3 D) 2034.7 cm^3

140) A cone with height 6 in. and radius 7 in. Round to the nearest whole number. 140) _____

- A) 88 in.^3 B) 615 in.^3 C) 462 in.^3 D) 308 in.^3

Find the surface area of the solid figure.

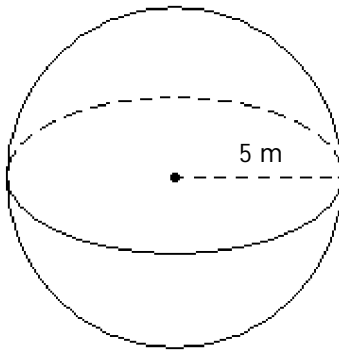
141) 141) _____



- A) 300 ft^2 B) 1000 ft^2 C) 600 ft^2 D) 800 ft^2

142) Use 3.14 for π . Round to the nearest hundredth.

142) _____



A) 78.50 m^2

B) 523.33 m^2

C) 314.00 m^2

D) 104.67 m^2

Decide whether the problem is an equation or an expression.

143) $3(9x + 4) = 5(9x - 6)$

143) _____

A) Equation

B) Expression

144) $2(8x + 5) - 3(8x - 3)$

144) _____

A) Equation

B) Expression

145) $x + y = 8$

145) _____

A) Expression

B) Equation

146) $x + y - 1$

146) _____

A) Equation

B) Expression

Simplify the expression.

147) $5x + 14x$

147) _____

A) $19x$

B) $70x$

C) $38x$

D) $19x^2$

148) $11x - 8 - 3x - 4$

148) _____

A) $8x - 4$

B) $-8x - 4$

C) $-8x - 12$

D) $8x - 12$

149) $-9y + 2 - 5 + 6 + y - 3$

149) _____

A) $-8y - 1$

B) $-10y$

C) $-10y + 1$

D) $-8y$

150) $-7b + 9 + 5b + 3b - 14$

150) _____

A) $b - 14$

B) $b + 9$

C) $b + 14$

D) $b - 5$

151) $-\frac{5}{12} + 3y + \frac{1}{12}y - 9 + \frac{13}{12}y$

151) _____

A) $4y - 4$

B) $\frac{25}{6} + 4$

C) $\frac{25}{6}y - \frac{113}{12}$

D) $\frac{23}{6}y$

152) $9p^2 + 6p^3 - 3p^2 - 2p^3$

152) _____

A) $10p^2p^3$

B) $10p^2$

C) $6p^2 + 4p^3$

D) $15p^2 - 5p^3$

153) $(-9x^2y)(-7x^2)(-5x)(9y)$

A) $-12x^5y^2$

C) $-2835xy$

B) $-2835x^5y^2$

D) $-9x^2y - 7x^2 - 5x + 9y$

153) _____

Give the numerical coefficient of the term.

154) $-5y^3$

A) 5

B) y^3

C) 3

D) -5

154) _____

155) $-10y$

A) y

B) 10

C) -10

D) $10y$

155) _____

156) -15

A) 1

B) -15

C) 15

D) 0

156) _____

157) xz

A) 0

B) x

C) xz

D) 1

157) _____

158) $-rm$

A) 1

B) r

C) -1

D) 0

158) _____

159) $17k^2$

A) 17

B) 34

C) 2

D) 289

159) _____

Identify the group of terms as like or unlike.

160) $4z, -3z$

A) Unlike

B) Like

160) _____

161) $7a^5, 7a^6$

A) Unlike

B) Like

161) _____

162) $9, 6, -13$

A) Like

B) Unlike

162) _____

163) $8b, 3, 10a$

A) Unlike

B) Like

163) _____

164) y, z

A) Like

B) Unlike

164) _____

Determine the number of terms and identify the coefficient of each term of the expression.

165) $-8m$

A) 1; 8

B) 2; $8m$

C) 1; $-8m$

D) 1; -8

165) _____

166) $-3y + 9y^2$

A) 2; 3

B) 2; 3 and 9

C) 2; -3 and 9

D) 2; -3

166) _____

167) $-7w + 2t - s$

A) 2; -7 and 2

B) 3; -7, 2, 1

C) 3; -7, 2, -1

D) 3; 7, 2, 1

167) _____

Identify the polynomial as a monomial, binomial, trinomial, or none of these. Give its degree.

- 168) $-2x^2$ 168) _____
 A) Monomial, degree -2 B) Binomial, degree 0
 C) Binomial, degree -2 D) Monomial, degree 2
- 169) $-18y^7 - 5$ 169) _____
 A) Binomial, degree 0 B) Binomial, degree 7
 C) Monomial, degree -18 D) Binomial, degree 8
- 170) $-16y^5 + 4y^4 + 1$ 170) _____
 A) Trinomial, degree 10 B) Trinomial, degree 5
 C) Trinomial, degree 9 D) Binomial, degree 5
- 171) $20z^4 + 5z^3 - 4z^2 + 9$ 171) _____
 A) Binomial, degree 10 B) None, degree 4
 C) Trinomial, degree 4 D) Trinomial, degree 9
- 172) $\frac{2}{5}r^3 + \frac{4}{5}r^2$ 172) _____
 A) Binomial, degree 5 B) Binomial, degree 2
 C) Trinomial, degree 2 D) Binomial, degree 3

Simplify whenever possible. Write the result with descending powers.

- 173) $9m^4 - 3m^4$ 173) _____
 A) $24m$ B) Cannot be simplified
 C) $6m^8$ D) $6m^4$
- 174) $3y^8 + 2y^7$ 174) _____
 A) $5y^{15}$ B) Cannot be simplified
 C) $5y^7$ D) $5y^8$
- 175) $7x^6 + 8x^5 + 8x^6$ 175) _____
 A) Cannot be simplified B) $15x^6 + 8x^5$
 C) $23x^5$ D) $23x^{17}$
- 176) $4a^9 - 10a^9 + 3a^8 + 11a^9 - 5a^8$ 176) _____
 A) $3a^{17}$ B) $5a^9 - 2a^8$
 C) Cannot be simplified D) $3a^9$
- 177) $-11m^9 + 5m^4 - 6m^2 + 7m^9 - 9m^4$ 177) _____
 A) $90m$ B) Cannot be simplified
 C) $-4m^9 - 4m^4 - 6m^2$ D) $6m^{15}$

178)

A)

B)

C)

D)

178) _____

Simplify.179) $10 \cdot 13 + 5 \cdot 6$

A) 430

B) 810

C) 160

D) 1080

179) _____

180) $240 \div 8 - 2$

A) 230

B) 40

C) 28

D) 234

180) _____

181) $3^2 + 8^2$

A) 121

B) 22

C) 44

D) 73

181) _____

182) $\frac{5}{4} \cdot \frac{1}{6} + \frac{4}{5} \cdot \frac{1}{4}$ A) $\frac{49}{120}$ B) $\frac{11}{30}$ C) $\frac{49}{72}$ D) $\frac{49}{88}$

182) _____

183) $(4 + 7)[7 + (8 + 5)]$

A) 102

B) 1316

C) 560

D) 220

183) _____

184) $\frac{7(5 + 7) + 7 \cdot 5}{7(3 - 1)}$ A) $\frac{7}{10}$ B) $\frac{17}{2}$ C) $\frac{67}{20}$ D) $\frac{67}{14}$

184) _____

185) $\frac{5(4 - 2) + 5 \cdot 4}{5(3 - 2)}$

A) 1

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

D) 6

185) _____

186) $\left(\frac{7}{9} + \frac{5}{9}\right) \cdot \frac{4}{14}$ A) $\frac{8}{21}$ B) $\frac{1}{6}$ C) $\frac{21}{32}$ D) $\frac{24}{7}$

186) _____

187) $290 \cdot \frac{9}{5} + 32$

A) 554

B) 180.2

C) 144.6

D) 490

187) _____

188) $\frac{5}{9}(140 - 32)$

A) 95.6

B) 60

C) 284

D) 45.8

188) _____

Find the numerical value of the expression for a) $x = 4$ and b) $x = 18$.

189) $\frac{x+3}{7}$

189) _____

A) a) 3 b) 1

B) a) 1 b) 3

C) a) 1 b) $\frac{1}{3}$

D) a) $\frac{12}{7}$ b) $\frac{54}{7}$

190) $\frac{4x-9}{7x}$

190) _____

A) a) $\frac{1}{18}$ b) $\frac{1}{2}$

B) a) $\frac{1}{4}$ b) $\frac{1}{2}$

C) a) $\frac{1}{2}$ b) $\frac{1}{4}$

D) a) $\frac{25}{126}$ b) $\frac{9}{14}$

191) $\frac{x+2}{x-1}$

191) _____

A) a) $\frac{20}{17}$ b) 2

B) a) 2 b) $\frac{20}{17}$

C) a) $\frac{16}{19}$ b) $\frac{2}{5}$

D) a) $\frac{2}{5}$ b) $\frac{16}{19}$

192) $8x^2 + 9x$

192) _____

A) a) 68 b) 306

B) a) 164 b) 2754

C) a) 92 b) 2430

D) a) 100 b) 450

Write the calculations when the operations are applied to a generic number x and simplify the result.

193) Add 6.

193) _____

Multiply the result by 6.

Subtract 6 from the result.

Divide by 6.

A) $\frac{6x-6}{6} + 6$

B) $\frac{6(x+6)-6}{6}$

C) $\frac{6(x+6)}{6} - 6$

D) $\frac{6(x+6)}{6}$

Evaluate the expression for the given values.

194) $6x + 7y + 9$; $x = 0$, $y = 9$

194) _____

A) 72

B) 63

C) 78

D) 16

195) $\frac{2x}{y} + y^2$ $x = 10$, $y = 6$

195) _____

A) $\frac{118}{3}$

B) $\frac{28}{3}$

C) $\frac{506}{5}$

D) $\frac{16}{3}$

196) $\frac{3x-10y}{9}$ $x = 7$, $y = 2$

196) _____

A) $\frac{11}{9}$

B) $\frac{64}{9}$

C) $\frac{41}{9}$

D) $\frac{1}{9}$

197) $\frac{x+y}{7x-4}$ $x = 6$, $y = 8$

197) _____

A) $\frac{7}{11}$

B) $\frac{7}{19}$

C) $\frac{3}{19}$

D) $\frac{1}{3}$

- 198) $(x + 3y)^2$ $x = 3, y = 3$ 198) _____
 A) 12 B) 24 C) 144 D) 36
- 199) $10x^2 + 9y$ $x = 8, y = 2$ 199) _____
 A) 6418 B) 1460 C) 658 D) 112

Solve the problem.

- 200) Use the formula $F = \frac{9}{5}C + 32$ to write 5° C as degrees Fahrenheit. 200) _____
 A) 41° F B) -15° F C) 20.6° F D) -23° F
- 201) Use the formula $C = \frac{5}{9}(F - 32)$ to write 59° F as degrees Celsius. 201) _____
 A) 15° C B) 50.6° C C) 0.8° C D) 138.2° C
- 202) The formula for finding the present value of an item that depreciates yearly is $v = c - crt$. In this formula, v is the present value, c is the original cost, r is the rate of depreciation per year, and t is the number of years that have passed. After 8 years, what is the value of a car originally costing \$27,000 that depreciated at a rate of 0.1 per year? 202) _____
 A) \$21,600 B) \$0 C) \$48,600 D) \$5400
- 203) The sum, S , of the first n positive integers is given by the following formula: $S = \frac{n(n + 1)}{2}$. What is the sum of the first 29 positive integers? 203) _____
 A) 435 B) 30 C) 15 D) 217.5
- 204) Bathing suits are often on sale in July. The regular price of one suit is \$28. With a 20% discount, what is the sale price of the suit? 204) _____
 A) \$22.40 B) \$21.40 C) \$5.60 D) \$23.40
- 205) Apply 9% sales tax to the purchase of a \$610 camera to find the total after tax. List the multiplier and the result. Round your answers to the nearest cent. 205) _____
 A) 1.09; \$1159.00 B) 1.09; \$664.90 C) 1.09; \$658.80 D) 1.09; \$671.00

Translate the stated rule or relationship to a formula.

- 206) The length, l , of a dog in inches is 2.5 times the shoulder height, h , in inches plus 5. 206) _____
 A) $l = 2.5h$ B) $l = 2.5h + 5$ C) $l = h + 7.5$ D) $l = 5h + 2.5$
- 207) The cost, C , of renting a car is \$63 plus \$9.4 times the number of miles driven, x . 207) _____
 A) $C = 63 + 9.4x$ B) $C = 72.4x$ C) $C = 9.4 + 63x$ D) $C = (63 + 9.4)x$

Use a commutative property to complete the statement.

- 208) $yz =$ _____ 208) _____
 A) $y + z$ B) $-yz$ C) $\frac{1}{yz}$ D) zy
- 209) $3x + 10 =$ _____ 209) _____
 A) $-3x + 10$ B) $10 + 3x$ C) $10x + 3$ D) $3x - 10$

Use an associative property to complete the statement.

210) $(7x + 3y) + 2z =$ _____ 210) _____
A) $7x + (3y + 2z)$ B) $(7x + 3y + 2z)$ C) $(3y + 7x) + 2z$ D) $7x + 3y + 2z$

211) $9(ab) =$ _____ 211) _____
A) $(ab)9$ B) $(9a)b$ C) $9(ba)$ D) $b(9a)$

Use the commutative and associative properties to simplify the expression.

212) $3 + (4x + 6)$ 212) _____
A) $9 + 4x$ B) $18 + 4x$ C) $9x + 6$ D) $30x$

213) $(4x + 4) - 6$ 213) _____
A) $-2x - 6$ B) $-8x$ C) $4x - 24$ D) $4x - 2$

214) $\frac{6}{7}\left(\frac{7}{6}t\right)$ 214) _____
A) $\frac{36}{49}t$ B) t C) $\frac{85}{42}t$ D) $\frac{7}{6}t$

215) $20 + 25 + 80 + 60 + 75 + 40$ 215) _____
A) 320 B) 225 C) 300 D) 200

Simplify the expression.

216) $8a + 2 - 6a$ 216) _____
A) $2a + 2$ B) $4a$ C) $14a + 2$ D) $-2a + 2$

217) $9x + 2 - 2x - 5$ 217) _____
A) $4x$ B) $7x - 3$ C) $11x - 3$ D) 4

218) $8x + 3 - 2x + 1$ 218) _____
A) $10x$ B) $6x + 4$ C) $10x + 4$ D) $6x + 2$

Use the distributive property to rewrite the expression.

219) $6(x + 4)$ 219) _____
A) $6x + 4$ B) $6x + 24$ C) $6x + 6$ D) $24x$

220) $-2(x + 4)$ 220) _____
A) $-2x + 8$ B) $x - 8$ C) $-2x - 8$ D) $-2x + 4$

221) $-9(x - 8)$ 221) _____
A) $-9x + 8$ B) $x - 72$ C) $-9x - 72$ D) $-9x + 72$

222) $-\frac{3}{7}(14x - 21y)$ 222) _____
A) $-6x - 9y$ B) $3x$ C) $6x - 9y$ D) $-6x + 9y$

223) $5x + 5z$ 223) _____
A) $5(xz)$ B) $10(x + z)$ C) $5(x + z)$ D) $25(x + z)$

- 224) $-5(-6x) - 5(8y)$ 224) _____
 A) $30x - 40y$ B) $-10(-6x + 8y)$ C) $-5x(-6 + 8)$ D) $-5(-6x + 8y)$
- 225) $9(x + 3y - 8)$ 225) _____
 A) $9x - 27y - 72$ B) $9x + 3y + 8$ C) $9x + 27y + 8$ D) $9x + 27y - 72$
- 226) $-(2x + 4y)$ 226) _____
 A) $2x + 4y$ B) $2x - 4y$ C) $-2x - 4y$ D) $-2x + 4y$
- 227) $-(-8v - 3r)$ 227) _____
 A) $-8v - 3r$ B) $8v - 3r$ C) $8v + 3r$ D) $-8v + 3r$
- 228) $-(-8m + 8n - 9p)$ 228) _____
 A) $-8m + 8n - 9p$ B) $8m - 8n - 9p$ C) $8m - 8n + 9p$ D) $-8m + 8n + 9p$
- 229) $(4x - 12)(x + 11)$ 229) _____
 A) $4x^2 + 32x - 132$ B) $4x^2 + 31x - 132$ C) $x^2 - 132x + 32$ D) $x^2 + 32x + 31$

Use the distributive property to simplify the expression.

- 230) $-2(x - 6x^2)$ 230) _____
 A) $16x - 6x^2$ B) $-2x + 12x^2$ C) $28x^2$ D) $-8x + 12x^2$

Multiply.

- 231) $9x(x + 7)$ 231) _____
 A) $-3x^2 + 63x$ B) $36x^2$ C) $-27x^2 + 7x$ D) $9x^2 + 63x$
- 232) $7x(8x^2 + 6x - 1)$ 232) _____
 A) $56x^3 + 6x - 1$ B) $56x^2 + 42x - 7$
 C) $56x^3 + 42x^2 - 7x$ D) $56x^3 + 42x^2 - 7$
- 233) $(3x - 9)(x + 9)$ 233) _____
 A) $x^2 + 18x + 17$ B) $3x^2 + 18x - 81$ C) $3x^2 + 17x - 81$ D) $x^2 - 81x + 18$
- 234) $(8x - 1)(x^2 - 6x + 1)$ 234) _____
 A) $8x^3 - 49x^2 + 14x - 1$ B) $8x^3 - 48x^2 + 8x + 1$
 C) $8x^3 + 49x^2 - 14x + 1$ D) $8x^3 - 47x^2 + 2x - 1$
- 235) $(x - 8)(x - 10)$ 235) _____
 A) $2x^2 - 80$ B) $x^2 - 18x + 80$ C) $x^2 + 18x - 80$ D) $2x + 80$
- 236) $(6z + 5)^2$ 236) _____
 A) $36z^2 + 25$ B) $6z^2 + 25$ C) $6z^2 + 60z + 25$ D) $36z^2 + 60z + 25$
- 237) $(z + 2)(z + 5)$ 237) _____
 A) $z^2 + 7z + 10$ B) $2z^2 + 10$ C) $z^2 + 7z + 7$ D) $2z + 10$

238) $(x + 5)(x - 11)$ 238) _____
 A) $x^2 + 6x - 55$ B) $x^2 + 6x + 55$ C) $x^2 - 6x - 55$ D) $x^2 - 6x + 55$

239) $(6x + 5)(5x - 1)$ 239) _____
 A) $11x^2 + 19x - 5$ B) $11x^2 + 19x + 19$ C) $30x^2 + 19x - 5$ D) $30x^2 + 19x + 19$

Rewrite the expression as a single product using the distributive property.

240) $7 \cdot 6 + 7 \cdot 4$ 240) _____
 A) $7(6 + 4)$ B) $10(6 + 4)$ C) $7(6 + 10)$ D) $7(10 + 4)$

241) $35 \cdot 4 + 35 \cdot 6$ 241) _____
 A) $35(4 + 10)$ B) $35(4 + 6)$ C) $10(4 + 6)$ D) $35(10 + 6)$

Provide an appropriate response.

242) A student claims to have a shortcut for subtracting two mixed numbers that allows her to avoid turning them both into improper fractions. Here is her work. 242) _____

$$\begin{aligned} 5\frac{4}{11} - 2\frac{3}{11} &= \left(5 + \frac{4}{11}\right) - \left(2 + \frac{3}{11}\right) \\ &= 5 + \frac{4}{11} - 2 - \frac{3}{11} \\ &= 5 - 2 + \frac{4}{11} - \frac{3}{11} \\ &= 3\frac{1}{11} \end{aligned}$$

Her method is valid and sometimes a faster way to do the computation.

She starts by rewriting each mixed number according to the definitions. That is,

$$5\frac{4}{11} = 5 + \frac{4}{11} \text{ and } 2\frac{3}{11} = 2 + \frac{3}{11}$$

Which property allows her to move from this notation to the second line in the calculation above?

- A) Commutative property B) Associative property C) Distributive property

243) A student claims to have a shortcut for subtracting two mixed numbers that allows her to avoid turning them both into improper fractions. Here is her work. 243) _____

$$\begin{aligned} 5\frac{3}{11} - 2\frac{2}{11} &= \left(5 + \frac{3}{11}\right) - \left(2 + \frac{2}{11}\right) \\ &= 5 + \frac{3}{11} - 2 - \frac{2}{11} \\ &= 5 - 2 + \frac{3}{11} - \frac{2}{11} \\ &= 3\frac{1}{11} \end{aligned}$$

Her method is valid and sometimes a faster way to do the computation.

She starts by rewriting each mixed number according to the definitions. That is,

$$5\frac{3}{11} = 5 + \frac{3}{11} \text{ and } 2\frac{2}{11} = 2 + \frac{2}{11}$$

Which property allows her to move from the second line to the third line in the calculation above?

- A) Associative property B) Commutative property C) Distributive property

Simplify the expression.

244) $7x - 4(6 - x) + 30$

A) $11x + 54$

B) $11x + 6$

C) $6x + 6$

D) $3x + 54$

244) _____

245) $2 + 9(x + 3y)$

A) $11x + 3y$

B) $2 + 27xy$

C) $2 + 9x + 27y$

D) $2 + 9x + 3y$

245) _____

246) $-6 - (7 - 4r)$

A) $-13 + 4r$

B) $-1 - 4r$

C) $1 - 4r$

D) $13 + 4r$

246) _____

247) $(6x - 15) - (2x - 1)$

A) $5x - 15$

B) $4x - 14$

C) $5x - 14$

D) $4x - 15$

247) _____

248) $-4(5m + 6) - 6(2m + 5)$

A) $-32m + 11$

B) $7m - 54$

C) $-32m + 54$

D) $-32m - 54$

248) _____

249) $6(5t - 4) + 6(2t + 6) + 2t$

A) $44t + 12$

B) $44t - 12$

C) $108t + 12$

D) $108t + 2$

249) _____

Simplify the expression and combine like terms.

250) $4p^2 + 2p^3 - 6p^2 - 9p^3$

A) $-2p^2 - 7p^3$

B) $-9p^2$

C) $-9p^2p^3$

D) $6p^2 - 15p^3$

250) _____

251) $14y + 2(6 - 6y)$

A) $8y + 12$

B) $-2y - 12$

C) $26y - 12$

D) $2y + 12$

251) _____

252) $-\frac{3}{8}(z - 15) - \frac{1}{16}z$

A) $\frac{5}{16}z + 15$

B) $\frac{7}{16}z - \frac{45}{8}$

C) $-\frac{7}{16}z + \frac{45}{8}$

D) $\frac{7}{16}z + \frac{45}{8}$

252) _____

253) $-5(3r + 10) + 7(7r + 6)$

A) $34r - 8$

B) $-2r + 5$

C) $-65r$

D) $34r + 10$

253) _____

Use the distributive property to write the expression without parentheses. Then simplify, if necessary.

254) $-3(x + y)$

A) $-3x + 3y$

B) $-3x + y$

C) $-3x - 3y$

D) $-3xy$

254) _____

255) $7(x - 3)$

A) $7x - 3$

B) $7x - 10$

C) $7x + 21$

D) $7x - 21$

255) _____

256) $6(2x + 8)$

A) $8x + 14$

B) $12x + 8$

C) $12x + 48$

D) $60x$

256) _____

257) $9(6x - 2)$

A) $54x - 18$

B) $54x - 2$

C) $15x - 11$

D) $72x$

257) _____

258) $7(x + 7y + 6)$

A) $7x - 49y - 42$

B) $7x + 49y + 6$

C) $7x + 49y + 42$

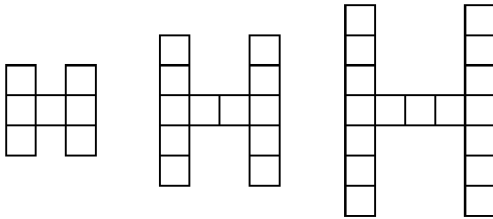
D) $7x + 7y + 6$

258) _____

Solve the problem.

259) You are planning an event that will require renting tables and chairs. You decide to place the tables in an H-shaped arrangement like the ones below with one chair being used per side of a table.

259) _____



Use the figure to complete the following chart, listing your results. Generalize the calculation and list your results in the last row, looking left to right in the chart.

Number of tables	Number of chairs
7	
12	
n	

A)

Number of tables	Number of chairs
7	18
12	28
17	38
n	$2n + 4$

B)

Number of tables	Number of chairs
7	16
12	26
17	36
n	$2n + 2$

C)

Number of tables	Number of chairs
7	11
12	16
17	21
n	$n + 4$

D)

Number of tables	Number of chairs
7	14
12	24
17	34
n	$2n$

Find the square root. When necessary, round to nearest thousandth.

260) $\sqrt{169}$

A) 13

B) 84.5

C) 56.333

D) 14

260) _____

261) $\sqrt{27}$

A) 6.196

B) 5.206

C) 5.195

D) 5.196

261) _____

Find the length of the third side of the right triangle. Round to the nearest thousandth, if necessary.

262)

262) _____

6 m

A) $c = 5\text{ m}$

B) $c = 7\text{ m}$

C) $c = 9\text{ m}$

D) $c = 10\text{ m}$

263)

263) _____

9 mi

A) $b = 15$ miB) $b = 14$ miC) $b = 11$ miD) $b = 12$ mi

264)

264) _____

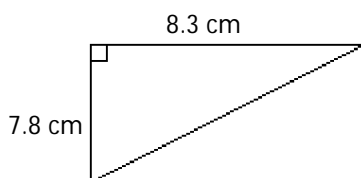
11 ft

A) $b \approx 2.000$ ftB) $b \approx 18.601$ ftC) $b = 104$ ftD) $b \approx 10.198$ ft

Find the length of the third side of the right triangle. If necessary, round to the nearest tenth.

265)

265) _____



A) 11.4 cm

B) 4.0 cm

C) 129.7 cm

D) 2.8 cm

266) Find the length in meters of a leg of a right triangle whose hypotenuse is 9 meters and other leg is 3 meters.

A) 72 meters

B) 8.5 meters

C) 6 meters

D) 36 meters

In a right triangle, find the length of the side not given. Assume c is the hypotenuse. Type an exact answer, using radicals as needed.

267) $a = 9$, $b = 12$

267) _____

A) $c = 14$ B) $c = 15$ C) $c = 11$ D) $c = 8$

Provide an appropriate response.

268) The relationship between the sides of a right triangle is stated in the _____.

A) Pythagorean triple

B) square root

C) hypotenuse

D) Pythagorean theorem

Determine if the set of numbers forms a Pythagorean triple.

269) 15, 20, 25

A) Yes

B) No

270) 12, 14, 16

A) Yes

B) No

Solve the problem.

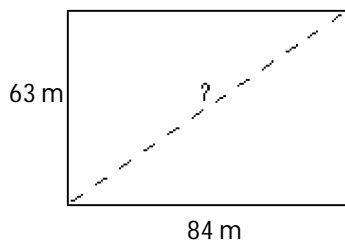
- 271) Use the Pythagorean theorem to find the length of the diagonal of a square with an area of 144 square inches. Round to the nearest tenth of an inch. 271) _____
- A) 17 B) 24 C) 4.9 D) 12

- 272) A guy wire is attached to a telephone pole at a point 6 m above the ground. How long is the wire if the other end is attached at a point on the ground 8 m from the base of the pole? 272) _____

- _____
- 8
- A) 5 m B) 7 m C) 9 m D) 10 m

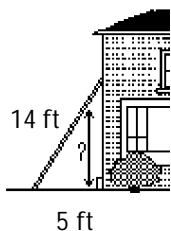
- 273) A commuter drives 12 miles north from home and then 16 miles west to get to work. What would be the length of the trip if it were possible to drive along a straight line from home to work? 273) _____
- A) 11 mi B) 20 mi C) 14 mi D) 19 mi

- 274) A rectangular plot of land is 63 meters wide by 84 meters long. Find the length of the diagonal rounded to the nearest tenth of a meter when appropriate. 274) _____



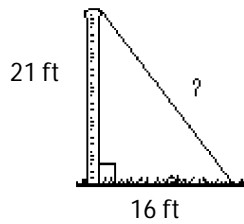
- A) 147 m B) 106 m C) 55.6 m D) 105 m

- 275) A 14-foot ladder is leaning against a house with the base of the ladder 5 feet from the house. How high up the house does the ladder reach? Round to the nearest tenth of a foot when appropriate. 275) _____



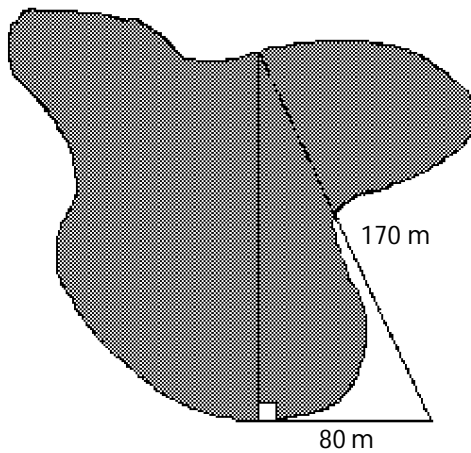
- A) 14.9 ft B) 13.1 ft C) 12.5 ft D) 9 ft

- 276) One end of a guy wire is attached to the top of a 21-foot pole and the other end is anchored into the ground 16 feet from the base of the pole. Find the length of the guy wire. Round to the nearest tenth of a foot when appropriate.



- A) 37 ft B) 26.4 ft C) 37.8 ft D) 27.2 ft

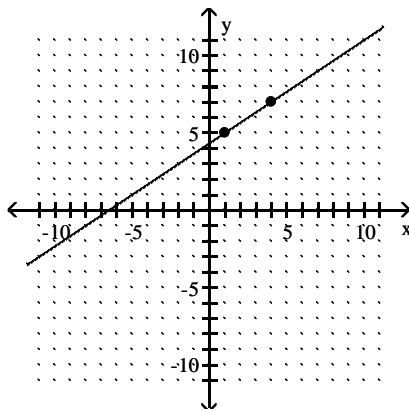
- 277) Avegail needs to determine the distance at certain points across a lake. Her crew and she are able to measure the distances shown on the diagram below. Find the distance across the lake to the nearest tenth of a meter.



- A) 187.9 m B) 150 m C) 9.5 m D) 90 m

Find the slope of the line shown on the graph.

278)

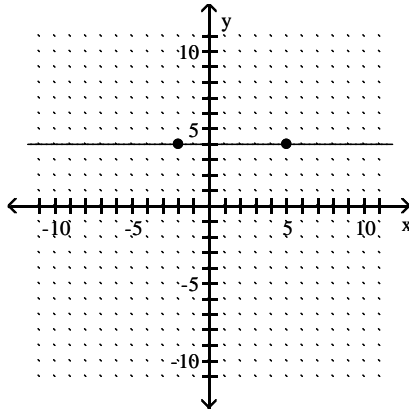


- A) $\frac{12}{5}$ B) $\frac{3}{2}$ C) $-\frac{2}{3}$ D) $\frac{2}{3}$

278) _____

279)

279) _____



A) 0

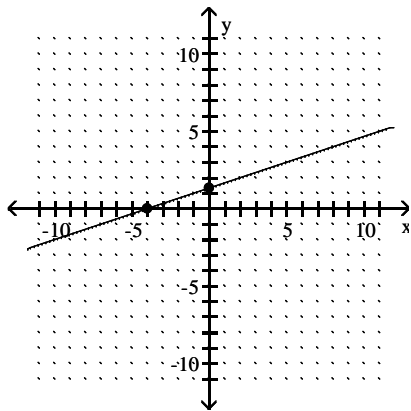
B) 1

C) $\frac{7}{8}$

D) 4

280)

280) _____

A) $\frac{1}{3}$

B) 3

C) -3

D) $-\frac{1}{3}$

Find the slope of the line containing the pair of points.

281) (5, 2) and (9, 4)

281) _____

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

B) 2

C) $-\frac{1}{2}$ D) $\frac{3}{7}$

282) (8, -9) and (4, -2)

282) _____

A) $-\frac{7}{4}$ B) $\frac{7}{4}$ C) $-\frac{11}{12}$ D) $-\frac{4}{7}$

283) (-9, 2) and (18, 1)

283) _____

A) $\frac{1}{3}$ B) $-\frac{1}{27}$ C) $\frac{1}{27}$

D) - 27

284) (4, 0) and (0, 2)

284) _____

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

B) 2

C) - 2

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

285) $(-3, -3)$ and $(-3, -10)$

A) undefined

B) $\frac{13}{6}$

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

D) 0

285) _____

286) $(7, 7)$ and $(6, 7)$

A) 14

B) $\frac{14}{13}$

C) undefined

D) 0

286) _____

287) $\left(\frac{1}{6}, -\frac{3}{8}\right)$ and $\left(\frac{1}{2}, -\frac{1}{4}\right)$

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

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

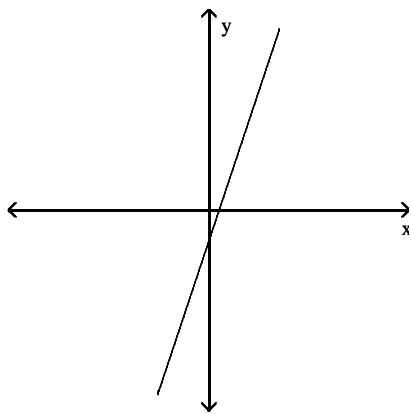
C) $\frac{2}{3}$

D) $\frac{3}{8}$

287) _____

Decide whether the slope is positive, negative, zero, or undefined.

288)



A) Positive

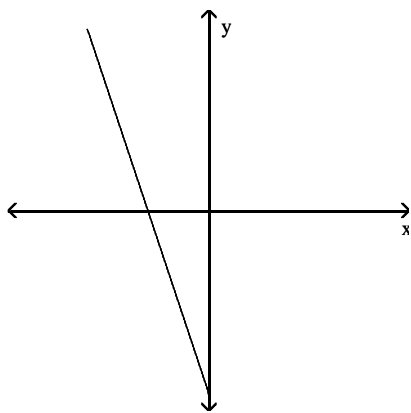
B) Zero

C) Negative

D) Undefined

288) _____

289)



A) Zero

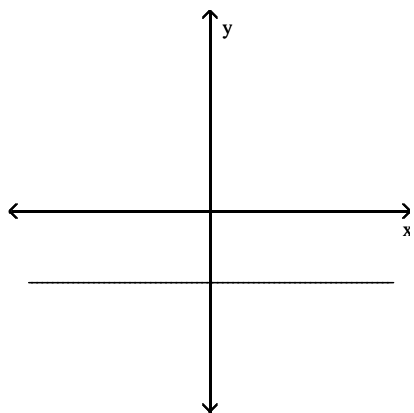
B) Undefined

C) Negative

D) Positive

289) _____

290)



A) Undefined

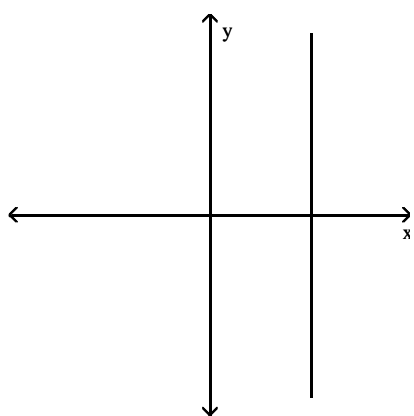
B) Zero

C) Negative

D) Positive

290) _____

291)



A) Negative

B) Zero

C) Undefined

D) Positive

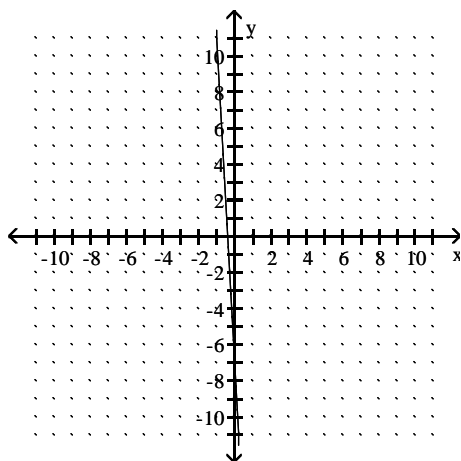
291) _____

Match the description with the correct graph.

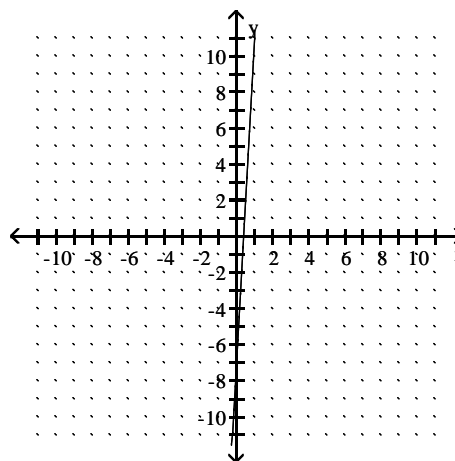
292) The slope is a large positive number.

292) _____

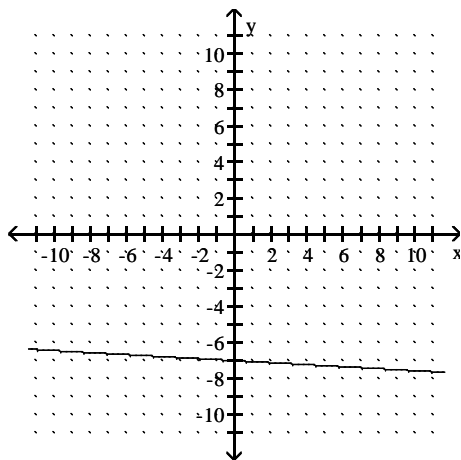
A)



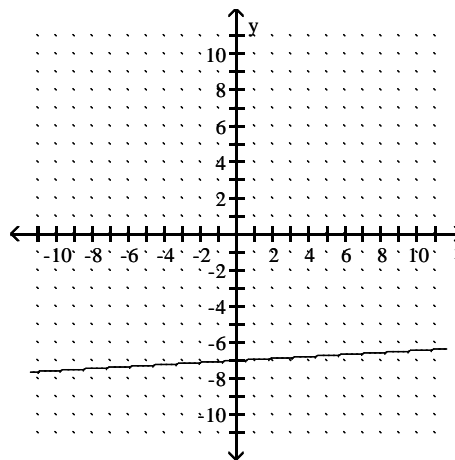
B)



C)



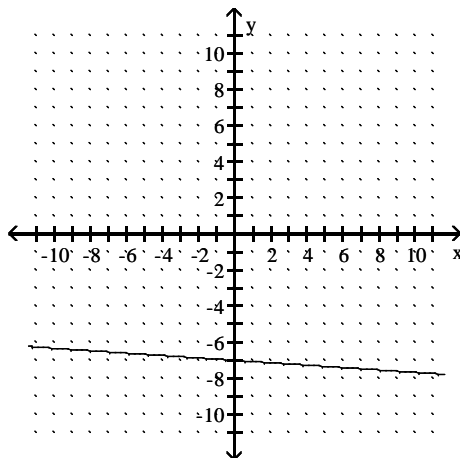
D)



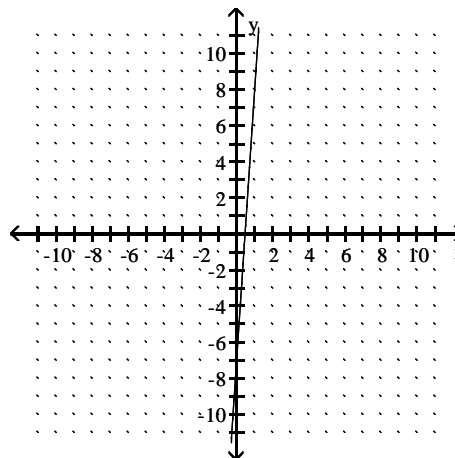
293) The slope is a negative number near zero.

293) _____

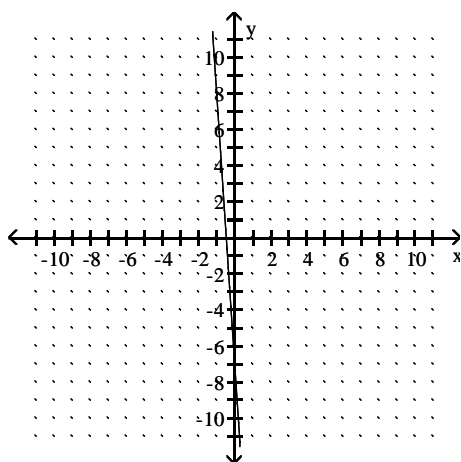
A)



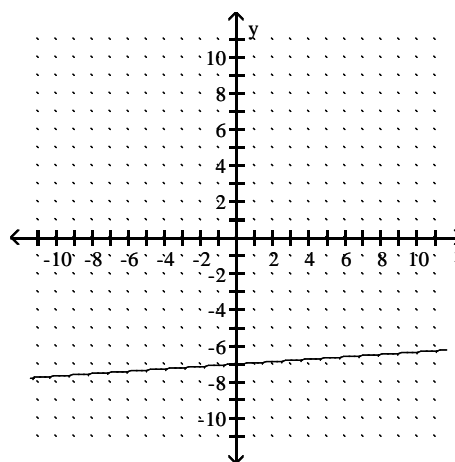
B)



C)



D)



Solve the problem.

294) The price of an airline ticket has steadily increased each week for the past month. If a linear equation was found to model the ordered pairs (date, price of ticket), which of the following would represent the slope of the graph of the equation?

294) _____

- A) The slope is positive.
C) The slope is negative.

- B) The slope is zero.
D) The slope is undefined.

Find the rate of change in the following table.

295)

x	-2	-1	0	1
f(x)	-8	-3	2	7

295) _____

A) -2

B) 2

C) -5

D) 5

A line has the given slope m and passes through the first point listed in the table. Complete the table so that each point in the table lies on the line.

296) $m = 1$

296) _____

x	0	1	2	3
y	-2			

A)

x	0	1	2	3
y	-2	1	0	1

B)

x	0	1	2	3
y	-2	-1	1	0

C)

x	0	1	2	3
y	-2	0	-1	1

D)

x	0	1	2	3
y	-2	-1	0	1

297) $m = \frac{1}{5}$

297) _____

x	0	1	2	3
y	$-\frac{1}{5}$			

A)

x	0	1	2	3
y	$-\frac{1}{5}$	$1\frac{1}{5}$	$\frac{1}{5}$	$\frac{2}{5}$

B)

x	0	1	2	3
y	$-\frac{1}{5}$	-1	1	$\frac{2}{5}$

C)

x	0	1	2	3
y	$-\frac{1}{5}$	0	$\frac{1}{5}$	$\frac{2}{5}$

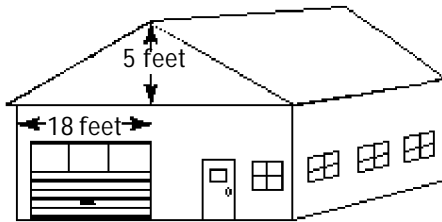
D)

x	0	1	2	3
y	$-\frac{1}{5}$	0	1	$\frac{2}{5}$

Solve.

298) The pitch of a roof is its slope. Find the pitch of the roof shown.

298) _____



A) $\frac{18}{5}$

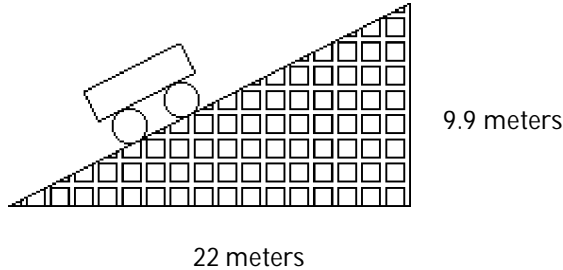
B) $\frac{5}{36}$

C) 90

D) $\frac{5}{18}$

299) A section of roller coaster track has the dimensions shown in the diagram. Find the grade of the track, which is the slope written as a percent.

299) _____



A) 2%

B) 50%

C) 9.9%

D) 45%

300) An inclined walkway leading to a new building is to rise 11 inches for each horizontal distance of 22 feet. Write this slope as a grade. (Round to the nearest tenth of a percent if necessary.)

300) _____

A) 50%

B) 2400%

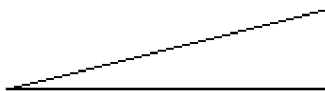
C) 200%

D) 4.2%

Solve the problem.

301) A motorcycle daredevil is planning a stunt to perform at a county fair. A ramp must be built to give him a 20% grade, or slope. If the vertical height at the end of the ramp must be 18 ft to assure that the stunt is a success, what must be the length of the horizontal run?

301) _____



A) 3.24 ft

B) 324 ft

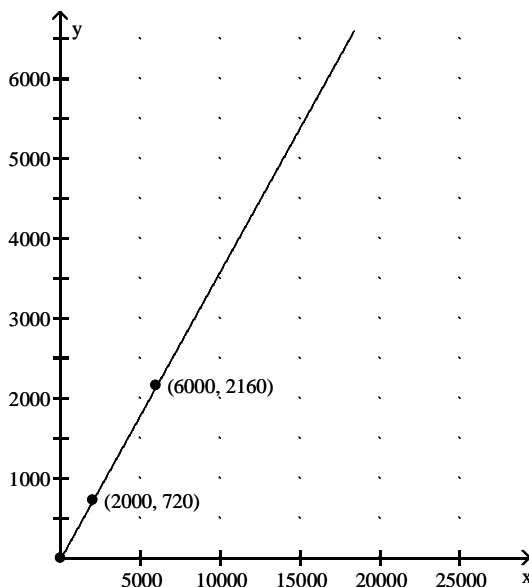
C) 90 ft

D) 18 ft

Find the slope of the line and write the slope as a rate of change. Don't forget to attach the proper units.

- 302) The graph shows the total cost y (in dollars) of owning and operating a mini-van where x is the number of miles driven.

302) _____



- A) \$34.00 per mile
B) \$2.78 per mile
C) \$0.36 per mile
D) cannot be determined

Solve the problem.

- 303) A portion of Road A declines steadily for 190 feet over a horizontal distance of 2500 feet. A portion of Road B declines steadily for 360 feet over a horizontal distance of 4300 feet. Which road is steeper?

303) _____

- A) Road B
B) Road A
C) Neither

- 304) Ramp A climbs steadily for 23 yards over a horizontal distance of 250 yards. Ramp B climbs steadily for 15 yards over a horizontal distance of 190 yards. Which ramp is steeper?

304) _____

- A) Ramp B
B) Ramp A
C) Neither

Find the distance in the xy -plane between the two points. Round an approximate result to the nearest hundredth.

- 305) (6, 0) and (0, 8)

305) _____

- A) 3.16
B) 10
C) 2
D) 20

- 306) (5, 5) and (15, 29)

306) _____

- A) 10
B) 24
C) 4.90
D) 26

- 307) (-4, 2) and (-8, -1)

307) _____

- A) -5
B) 12
C) 5
D) 2.24

- 308) (-1, -2) and (5, -11)

308) _____

- A) 10.82
B) 36
C) 10.39
D) 39

- 309) (-2, 1) and (0, -5)

309) _____

- A) 6.32
B) 6
C) 20
D) 3.16

- 310) (4.4, 0.7) and (1.4, 3.7) 310) _____
 A) 1.41 B) 6 C) 4.24 D) 8.49
- 311) (8.5, -1.4) and (2.5, -13.4) 311) _____
 A) 13.42 B) 26.83 C) 12 D) 2.24

Solve the problem.

- 312) After school, a student drives to her part time job which is located 3 miles north and 3 miles east of the school. Her home is 13 miles north and 27 miles east of the school. How far is her job from her home? 312) _____
 A) 26 miles B) 10 miles C) 4.90 miles D) 24 miles
- 313) A large classroom is set up so that each seat is exactly one yard from the seats in front, behind, and to each side of it. Sarah sits 7 seats behind and 7 seats to the right of her friend Kevin, and she sits 8 seats behind and 14 seats to the right of her friend Krishna. Find the distance between Kevin and Krishna. 313) _____
 A) 4.000 B) 3.464 C) 7.071 D) 10.000
- 314) 314) _____
 A) B) C) D)

Determine the operation being performed on the objects.

- 315) 315) _____
 Expression Objects Operation
 $\frac{16}{2}$ 16 and 2
 A) Absolute value B) Subtraction C) Multiplication D) Division
- 316) 316) _____
 Expression Objects Operation
 $\frac{a}{3} + \frac{b}{27}$ $\frac{a}{2}$ and $\frac{b}{27}$
 A) Subtraction B) Division C) Addition D) Multiplication

Determine the objects on which the operation is being performed.

- 317) 317) _____
 Expression Objects Operation
 $\frac{30 - t}{5}$ subtraction
 A) 30 - t and 5 B) t and 5 C) 30 and t D) 30 and 5
- 318) 318) _____
 Expression Objects Operation
 $-|-74|$ absolute value
 A) 74 B) -74 C) $|-74|$ D) -74 and 74

Answer the question as instructed.

- 319) Which of the following is the correct way to evaluate the expression $6 + 5 \cdot 2$? 319) _____
A) $6 + 5 \cdot 2 = 6 + 10 = 16$ B) $6 + 5 \cdot 2 = 12 + 10 = 22$
C) $6 + 5 \cdot 2 = 11 \cdot 2 = 22$ D) $6 + 5 \cdot 2 = 10 + 5 = 17$
- 320) Using the rules for the order of operations, what should be done first when evaluating the expression $(9 + 10^5)^4$? 320) _____
A) Evaluate: 10^4 B) Evaluate: 10^5 C) Add: $9 + 10$ D) Evaluate: 9^4
- 321) Using the rules for the order of operations, what should be done first when evaluating the expression $\frac{(7 + 8)^4}{3}$? 321) _____
A) Evaluate: 8^4 B) Evaluate: 7^4 C) Divide: $7 \div 3$ D) Add: $7 + 8$
- 322) Using the rules for the order of operations, what should be done first when evaluating the expression $\sqrt{10 \cdot 10 + 3} - 5$? 322) _____
A) Add: $10 + 3$
B) Distribute the Square Root over 10, 10, and 3
C) Multiply: $10 \cdot 10$
D) Subtract: $3 - 5$

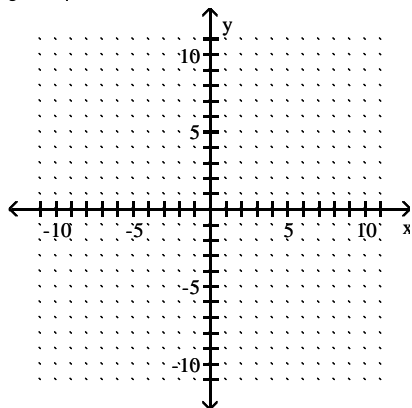
Solve the problem.

- 323) Police use a formula $s = S\sqrt{\frac{I}{L}}$, where S is the test-car speed and L is the test-skid length, to find the actual speed s in an accident which left a skid mark of I. Find the speed (nearest whole mph) when $S = 45$ mph, $I = 150$ ft, $L = 100$ ft. 323) _____
A) 37 mph B) 68 mph C) 95 mph D) 55 mph
- 324) A long-distance runner runs 2 miles south and then 4 miles east. How far is the runner from the starting point? The formula for the runner's distance from start is $D = \sqrt{S^2 + E^2}$, where S is the distance he has run south, and E is the distance he has run east. Round to the nearest thousandth, if necessary. 324) _____
A) 6 mi B) 5.472 mi C) 3.464 mi D) 4.472 mi

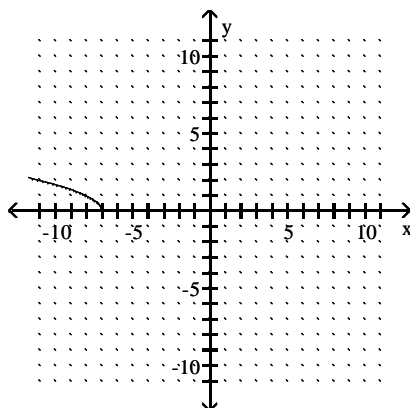
Create a table of values and use them to graph the radical function.

325) $y = \sqrt{x - 7}$

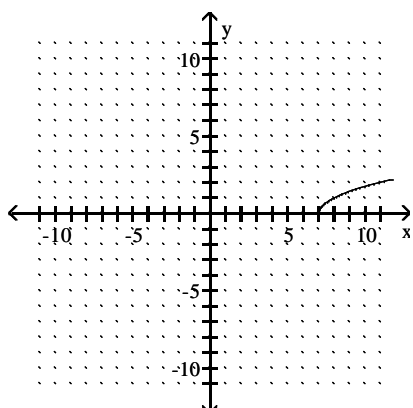
325) _____



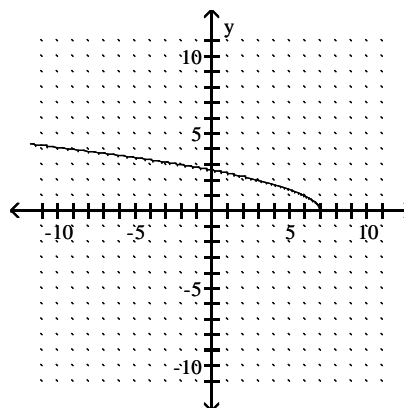
A)



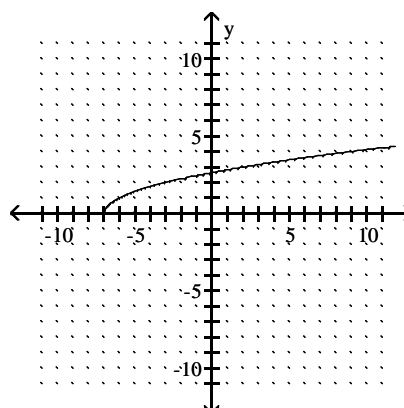
C)



B)

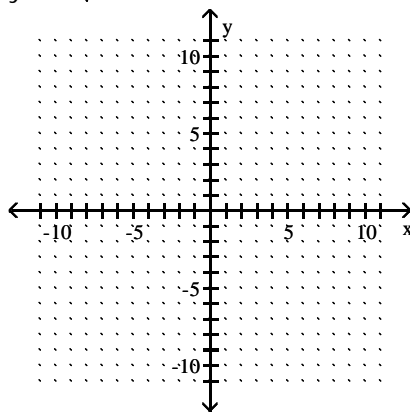


D)

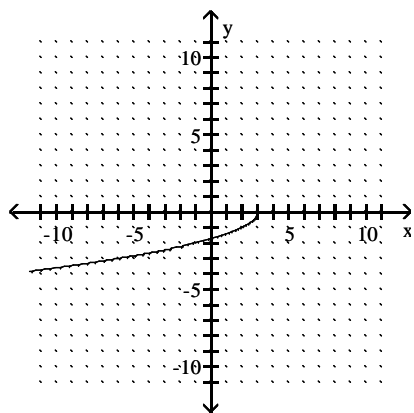


326) $y = -\sqrt{3-x}$

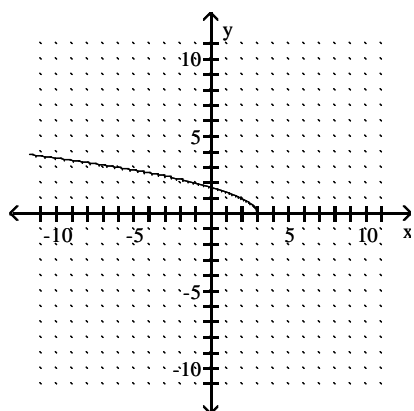
326) _____



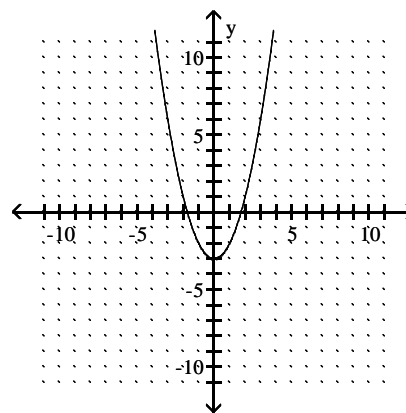
A)



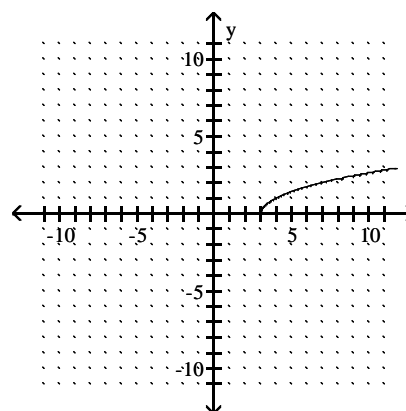
C)



B)



D)



Solve the problem.

- 327) The formula below is used to calculate the monthly payment for a loan. In the formula r is the interest rate as a decimal, t is the number of years over which the loan is being paid, P is the principal (amount borrowed), n is the number of payments per year, and M is the monthly payment. 327) _____

$$M = P \frac{\left(1 + \frac{r}{n}\right)^{nt} \frac{r}{n}}{\left(1 + \frac{r}{n}\right)^{nt} - 1}$$

Find the monthly mortgage payment for a loan of \$158,000 which is to be paid in 15 years where the interest rate is 9.9% and 12 payments are made each year.

- A) \$1688.22 B) \$1303.50 C) \$11,241.86 D) \$1922.93
- 328) Find the amount Tim will owe at the end of 4 years if \$200 is loaned to him at a rate of 5% compounded quarterly. Use $A = P\left(1 + \frac{r}{n}\right)^{nt}$. 328) _____
- A) \$240.00 B) \$243.10 C) \$210.19 D) \$243.98
- 329) Find the total amount a college student has in a savings account if \$4500 was invested and earned 2.5% compounded monthly for 7 years. Use $A = P\left(1 + \frac{r}{n}\right)^{nt}$. 329) _____
- A) \$16,924.65 B) \$4287.71 C) \$5359.63 D) \$4566.04
- 330) The annual percentage yield, or APY, $APY = \left(1 + \frac{r}{n}\right)^n - 1$, gives the effective interest rate on an investment based on the number of times the interest is compounded in a year, n , and the interest rate, r , as a decimal. Find the annual percentage yield if the interest rate is 5% and interest is compounded monthly. State the answer as a percent rounded to the nearest hundredth. 330) _____
- A) 5.12% B) -4.88% C) 2.53% D) 0.42%

- 331) A) B) C) D) 331) _____

Answer Key

Testname: UNTITLED2

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

Answer Key

Testname: UNTITLED2

- 51) C
- 52) C
- 53) A
- 54) C
- 55) B
- 56) C
- 57) D
- 58) D
- 59) B
- 60) A
- 61) D
- 62) B
- 63) C
- 64) D
- 65) D
- 66) D
- 67) A
- 68) D
- 69) A
- 70) B
- 71) C
- 72) B
- 73) C
- 74) D
- 75) C
- 76) B
- 77) B
- 78) B
- 79) B
- 80) B
- 81) B
- 82) D
- 83) B
- 84) B
- 85) C
- 86) D
- 87) D
- 88) The city's elevation is 326 feet below sea level.
- 89) A
- 90) A
- 91) A
- 92) D
- 93) B
- 94) A
- 95) C
- 96) C
- 97) A
- 98) C
- 99) C
- 100) B

Answer Key

Testname: UNTITLED2

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

Answer Key

Testname: UNTITLED2

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

Answer Key

Testname: UNTITLED2

- 201) A
- 202) D
- 203) A
- 204) A
- 205) B
- 206) B
- 207) A
- 208) D
- 209) B
- 210) A
- 211) B
- 212) A
- 213) D
- 214) B
- 215) C
- 216) A
- 217) B
- 218) B
- 219) B
- 220) C
- 221) D
- 222) D
- 223) C
- 224) D
- 225) D
- 226) C
- 227) C
- 228) C
- 229) A
- 230) B
- 231) D
- 232) C
- 233) B
- 234) A
- 235) B
- 236) D
- 237) A
- 238) C
- 239) C
- 240) A
- 241) B
- 242) C
- 243) B
- 244) B
- 245) C
- 246) A
- 247) B
- 248) D
- 249) A
- 250) A

Answer Key

Testname: UNTITLED2

- 251) D
- 252) C
- 253) A
- 254) C
- 255) D
- 256) C
- 257) A
- 258) C
- 259) B
- 260) A
- 261) D
- 262) D
- 263) D
- 264) D
- 265) A
- 266) B
- 267) B
- 268) D
- 269) A
- 270) B
- 271) A
- 272) D
- 273) B
- 274) D
- 275) B
- 276) B
- 277) B
- 278) D
- 279) A
- 280) A
- 281) A
- 282) A
- 283) B
- 284) D
- 285) A
- 286) D
- 287) D
- 288) A
- 289) C
- 290) B
- 291) C
- 292) B
- 293) A
- 294) A
- 295) D
- 296) D
- 297) C
- 298) D
- 299) D
- 300) D

Answer Key

Testname: UNTITLED2

- 301) C
- 302) C
- 303) A
- 304) B
- 305) B
- 306) D
- 307) C
- 308) A
- 309) A
- 310) C
- 311) A
- 312) A
- 313) C
- 314) A
- 315) D
- 316) C
- 317) C
- 318) B
- 319) A
- 320) B
- 321) D
- 322) C
- 323) D
- 324) D
- 325) C
- 326) A
- 327) A
- 328) D
- 329) C
- 330) A
- 331) D