

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

Determine whether it is true or false that the given number is a solution of the equation.

1) $-7; 8x = -56.$

A) True

B) False

Answer: A

2) $-3; 3x = -12.$

A) True

B) False

Answer: B

3) $-4; 7x - 2 = -30.$

A) True

B) False

Answer: A

4) $6; -7x + 3 = -44.$

A) True

B) False

Answer: B

5) $-8; 6x + 3x = -72.$

A) True

B) False

Answer: A

6) $-5; 8x - 4x = -64.$

A) True

B) False

Answer: B

7) $60; \frac{-x}{10} = -6$

A) True

B) False

Answer: A

8) $54; \frac{-x}{3} = -5$

A) True

B) False

Answer: B

9) $20; 7(y - 7) = 91$

A) True

B) False

Answer: A

10) $-14; 8(y - 4) = 144$

A) True

B) False

Answer: B

Solve using the addition principle.

11) $x + 3 = 9$

A) -12

B) 6

C) -6

D) 12

Answer: B

12) $s - 7 = 13$

A) 6

B) -20

C) 20

D) -6

Answer: C

13) $15 = -14 + a$

A) -1

B) 1

C) -29

D) 29

Answer: D

14) $-27 + z = -81$

A) 108

B) 54

C) -54

D) -108

Answer: C

15) $-27 = y - 52$

A) 25

B) -25

C) 79

D) -79

Answer: A

16) $z - 4.87 = -12.8$

A) -17.67

B) 7.93

C) -7.93

D) 17.67

Answer: C

17) $-24.8 - x = 29.3$

A) -4.5

B) 4.5

C) 54.1

D) -54.1

Answer: D

18) $x + \frac{1}{6} = -\frac{1}{24}$

A) $-\frac{1}{15}$

B) $-\frac{31}{144}$

C) $-\frac{1}{12}$

D) $-\frac{5}{24}$

Answer: D

19) $-\frac{3}{4} + y = -\frac{11}{20}$

A) $\frac{1}{20}$

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

C) 1

D) $\frac{1}{5}$

Answer: D

Solve using the multiplication principle.

20) $5x = 50$

A) 45

B) 10

C) 250

D) $\frac{1}{10}$

Answer: B

21) $-4b = 72$

A) -76

B) 1

C) -18

D) 76

Answer: C

22) $-65 = -5n$

A) -13

B) 60

C) 13

D) -60

Answer: C

23) $-\frac{y}{4} = 22$

A) -84

B) -88

C) 88

D) -26

Answer: B

24) $-\frac{1}{9}x = -8$

A) -17

B) 72

C) 0

D) -18

Answer: B

25) $-53.9 = 7.7z$

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

B) -7

C) -46.9

D) -46.2

Answer: B

26) $-21.08 = -5.27w$

A) 15.81

B) 4

C) -15.81

D) -4

Answer: B

27) $\frac{5}{4}x = \frac{5}{12}$

A) 1

B) $\frac{25}{48}$

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

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

Answer: D

Solve using the addition and multiplication principles together.

28) $5r + 5 = 20$

A) 1

B) 3

C) 14

D) 10

Answer: B

29) $9n - 6 = 66$

A) 63

B) 13

C) 8

D) 67

Answer: C

30) $28 = 7x - 7$

A) 32

B) 5

C) 28

D) 11

Answer: B

31) $65 = 10x - 5$

A) 7

B) 60

C) 11

D) 64

Answer: A

32) $199 = 11x + 12$

A) 176

B) 6

C) 180

D) 17

Answer: D

33) $-4y - 8 = 5 + 4y$

A) $-\frac{8}{13}$

B) 0

C) $-\frac{13}{8}$

D) $\frac{8}{13}$

Answer: C

34) $-5y + 2 = 6 - 2y$

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

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

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

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

Answer: B

35) $7x + 9 = 51 + 7x$

A) No Solution

B) All real numbers

C) 39

D) 35

Answer: A

36) $\frac{1}{4}a - \frac{1}{4} = -2$

A) -7

B) -9

C) 9

D) 7

Answer: A

37) $\frac{1}{6}f - 3 = 1$

A) 12

B) 24

C) -12

D) -24

Answer: B

38) $\frac{2}{5}x - \frac{1}{3}x = 5$

A) 75

B) -150

C) -75

D) 150

Answer: A

39) $\frac{1}{4}p - \frac{3}{8}p = 3$

A) 21

B) -21

C) 24

D) -24

Answer: D

40) $37(x - 148) = 74$

A) 146

B) 74

C) 150

D) 148

Answer: C

41) $7x - (2x - 1) = 2$

A) $\frac{1}{5}$

B) $-\frac{1}{5}$

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

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

Answer: A

42) $4(4x - 1) = 16$

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

B) $\frac{15}{16}$

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

D) $\frac{17}{16}$

Answer: C

43) $6(x + 2) - (6x + 12) = 0$

A) 0

B) 2

C) No solution

D) All real numbers

Answer: D

44) $15(5c - 7) = 9c - 9$

A) $\frac{16}{11}$

B) $-\frac{16}{11}$

C) $\frac{4}{21}$

D) $\frac{114}{11}$

Answer: A

45) $2(y + 4) = 3(y - 4)$

A) -20

B) 4

C) -4

D) 20

Answer: D

46) $4(2z - 4) = 7(z + 5)$

A) 51

B) 23

C) 19

D) -19

Answer: A

47) $2x + 7(3x - 5) = -8 - 4x$

A) $-\frac{43}{19}$

B) -1

C) $-\frac{43}{27}$

D) 1

Answer: D

48) $\frac{1}{4}(8x - 16) = \frac{1}{2}(8x - 4)$

A) -8

B) -1

C) $\frac{1}{8}$

D) 1

Answer: B

49) $-[6x + (4x + 8)] = 3 - (6x + 4)$

A) $-\frac{1}{4}$

B) $\frac{1}{4}$

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

D) $-\frac{7}{4}$

Answer: D

Solve for the given letter.

50) $A = \frac{1}{2}bh$ for b

A) $b = \frac{Ah}{2}$

B) $b = \frac{A}{2h}$

C) $b = \frac{2A}{h}$

D) $b = \frac{h}{2A}$

Answer: C

51) $S = 2\pi rh + 2\pi r^2$ for h

A) $h = \frac{S}{2\pi r} - 1$

B) $h = S - r$

C) $h = 2\pi(S - r)$

D) $h = \frac{S - 2\pi r^2}{2\pi r}$

Answer: D

52) $V = \frac{1}{3}Bh$ for B

A) $B = \frac{3h}{V}$

B) $B = \frac{V}{3h}$

C) $B = \frac{3V}{h}$

D) $B = \frac{h}{3V}$

Answer: C

53) $I = \frac{nE}{nr + R}$ for n

A) $n = \frac{-R}{Ir - E}$

B) $n = \frac{-IR}{Ir - E}$

C) $n = IR(Ir - E)$

D) $n = \frac{IR}{Ir + E}$

Answer: B

54) $P = s_1 + s_2 + s_3$ for s_2

A) $s_2 = P + s_1 + s_3$

B) $s_2 = s_1 + s_3 - P$

C) $s_2 = s_1 + P - s_3$

D) $s_2 = P - s_1 - s_3$

Answer: D

55) $F = \frac{9}{5}C + 32$ for C

A) $C = \frac{F - 32}{9}$

B) $C = \frac{5}{F - 32}$

C) $C = \frac{5}{9}(F - 32)$

D) $C = \frac{9}{5}(F - 32)$

Answer: C

56) $A = \frac{1}{2}h(b_1 + b_2)$ for b_1

A) $b_1 = \frac{A - h(b_2)}{2h}$

B) $b_1 = \frac{(b_2)2A - h}{h}$

C) $b_1 = \frac{2A - (h)(b_2)}{h}$

D) $b_1 = \frac{h(b_2) - 2A}{h}$

Answer: C

57) $a + b = s + r$ for r

A) $r = a + b - s$

B) $r = \frac{a + b}{s}$

C) $r = s(a + b)$

D) $r = \frac{a}{s} + b$

Answer: A

58) $A = P(1 + nr)$ for n

A) $n = \frac{A}{r}$

B) $n = \frac{Pr}{A - P}$

C) $n = \frac{A - P}{Pr}$

D) $n = \frac{P - A}{Pr}$

Answer: C

59) $\frac{1}{a} + \frac{1}{b} = c$ for b

A) $b = ac - \frac{1}{a}$

B) $b = \frac{1}{c} - a$

C) $b = \frac{a}{ac - 1}$

D) $b = \frac{1}{ac}$

Answer: C

60) $I = prt$ for r

A) $r = \frac{P - I}{It}$

B) $r = P - It$

C) $r = \frac{P - I}{1 + t}$

D) $r = \frac{I}{Pt}$

Answer: D

61) $\frac{PV}{T} = \frac{pv}{t}$ for P

A) $P = \frac{pvV}{tT}$

B) $P = \frac{pv}{tTV}$

C) $P = \frac{tvT}{pV}$

D) $P = \frac{pvT}{tV}$

Answer: D

62) $4k + ar = r - 9y$ for r

A) $r = \frac{4k + a}{1 - 9y}$

B) $r = \frac{-4k - 9y}{a - 1}$

C) $r = \frac{4k + 9y}{a - 1}$

D) $r = \frac{a - 1}{-4k - 9y}$

Answer: B

63) $w = \frac{4y - x}{y}$ for y

A) $y = \frac{4 - x}{w}$

B) $y = \frac{-x}{w - 4}$

C) $y = \frac{x}{w - 4}$

D) $y = \frac{w - 4}{-x}$

Answer: B

Solve the problem.

64) The perimeter of a rectangle, P , is given by $P = 2L + 2W$, where L is its length and W is its width. What is the perimeter of a rectangle of length 10 ft and width 12 ft?

A) 44 ft

B) 22 ft

C) 32 ft

D) 88 ft

Answer: A

65) The area of a square is given by $A = S^2$, where S is the length of a side. What is the area of a square with side 3.6 cm?

A) 7.2 cm²

B) 12.96 cm²

C) 51.84 cm²

D) 46 cm²

Answer: B

66) The area of a triangle is given by $A = \frac{1}{2}bh$, where b is the length of its base and h is its height. Find the area of a triangle with height 16 m and base 6 m.

A) 96 m²

B) 192 m²

C) 48 m²

D) 11 m²

Answer: C

67) The surface area of a cylinder with height, h , and base radius, r , is given by $A = 2\pi rh + 2\pi r^2$. Using 3.14 for π , find the surface area of a cylinder with a radius of 2 cm and a height of 30 cm.

A) 1130.4 cm²

B) 401.92 cm²

C) 389.36 cm²

D) 376.8 cm²

Answer: B

68) The circumference of a circle is given by $C = 2\pi r$, where r is the radius. Find the circumference if $\pi = 3.14$ and $r = 3$ feet.

A) 21.98 feet

B) 6 feet

C) 118.32 feet

D) 18.84 feet

Answer: D

69) The amount of simple interest I generated by principal P , annual interest rate r , and time t in years is given by $I = Prt$. Find the interest if $t = 7$ years, $P = \$100$, and $r = 0.04$.

- A) \$28.00 B) \$1.12 C) \$0.70 D) \$112.00

Answer: A

70) The area of a trapezoid of height h , small base b , and large base B is given by $A = \frac{1}{2}(b + B)h$. Find the area of a trapezoid whose height is 8 m, small base is 13 m, and large base is 15 m.

- A) 14 m^2 B) 195 m^2 C) 112 m^2 D) 84 m^2

Answer: C

71) The area of a trapezoid is 66 square feet. If its two bases are 8 and 14 feet, find its height. $\left(A = \frac{1}{2}(b + B)h \right)$

- A) 3 ft B) 12 ft C) 6 ft D) 1.5 ft

Answer: C

72) A circle has a circumference of 48π meters. Find the radius, r , of the circle. ($C = 2\pi r$)

- A) 8 m B) 48 m C) 12 m D) 24 m

Answer: D

73) The number of daily calories K needed by a moderately active man who weighs w pounds, is h inches tall, and is y years old, can be estimated by the formula $K = 19.18w + 7h - 9.52y + 92.4$. Find the daily caloric need of a moderately active man weighing 214 lbs, who is 72 inches tall and 49 years old.

- A) 3669.68 B) 4049.64 C) 4234.44 D) 3854.48

Answer: C

Solve.

74) One-half of a number is 3 more than one-sixth the same number. What is the number?

- A) 12 B) 9 C) 8 D) 18

Answer: B

75) The difference between two positive integers is 20. One integer is three times as great as the other. Find the integers.

- A) 10 and 20 B) 20 and 30 C) 30 and 50 D) 10 and 30

Answer: D

76) The sum of two consecutive integers is -269. Find the larger integer.

- A) -136 B) -134 C) -135 D) -133

Answer: B

77) The sum of three consecutive integers is 324. Find the integers.

- A) 106, 108, 110 B) 106, 107, 108 C) 107, 108, 109 D) 108, 109, 110

Answer: C

78) The sum of three consecutive even integers is 234. Find the integers.

- A) 71, 72, 73 B) 80, 82, 84 C) 78, 80, 82 D) 76, 78, 80

Answer: D

- 79) Two pages that face each other in a book have 349 as the sum of their page numbers. What is the number of the page that comes first?
 A) 173 B) 172 C) 174 D) 175
 Answer: C
- 80) If three times the smaller of two consecutive integers is added to four times the larger, the result is 144. Find the smaller integer.
 A) 21 B) 60 C) 19 D) 20
 Answer: D
- 81) If the first and third of three consecutive odd integers are added, the result is 81 less than five times the second integer. Find the third integer.
 A) 54 B) 27 C) 25 D) 29
 Answer: D
- 82) If Gloria received a 3 percent raise and is now making \$24,720 a year, what was her salary before the raise?
 A) \$22,720 B) \$25,000 C) \$23,720 D) \$24,000
 Answer: D
- 83) Stevie bought a stereo for \$300 and put it on sale at his store at a 65% markup rate. What was the retail price of the stereo?
 A) \$600.00 B) \$395.00 C) \$400.00 D) \$495.00
 Answer: D
- 84) On Monday, an investor bought 100 shares of stock. On Tuesday, the value of the shares went up 8%. How much did the investor pay for the 100 shares if he sold them Wednesday morning for \$1566?
 A) \$1450 B) \$1500 C) \$1691 D) \$1516
 Answer: A
- 85) At the end of the day, a storekeeper had \$1498 in the cash register, counting both the sale of goods and the sales tax of 7%. Find the amount that is the tax.
 A) \$98 B) \$88 C) \$103 D) \$93
 Answer: A
- 86) After receiving a discount of 13.5% on its bulk order of toner cartridges, John's Office Supply pays \$6574. What was the price of the order before the discount?
 A) \$5687 B) \$7461 C) \$7600 D) \$6015
 Answer: C
- 87) Midtown Antiques collects 5% sales tax on all sales. If total sales including tax are \$1808.58, find the portion that is the tax. Round your answer to the nearest cent.
 A) \$76.12 B) \$86.12 C) \$90.43 D) \$1722.46
 Answer: B
- 88) In a local election, 26,400 people voted. This was an increase of 5% over the last election. How many people voted in the last election? Round your answer to the nearest whole number of people.
 A) 25,143 people B) 27,789 people C) 27,720 people D) 25,080 people
 Answer: A

89) In a local election, 36,100 people voted. This was a decrease of 13% less than the last election. How many people voted in the last election? Round your answer to the nearest whole number of people.

- A) 40,793 people B) 31,407 people C) 31,947 people D) 41,494 people

Answer: D

90) The following is a real estate commission on the selling price of a house.

10% for the first \$100,000, and
2% for the amount which exceeds \$100,000

A realtor receives \$13,480.00 for selling a house. What was the selling price?

- A) \$374,000 B) \$274,000 C) \$174,000 D) \$3480

Answer: B

91) In a triangular cross-section of a lean-to for water fowl in an aviary, the second angle is 3 times as large as the first angle. The measure of the third angle is 10° greater than that of the first angle. How large are the angles?

- A) 34° , 102° , 44° B) 34° , 146° , 146° C) 84° , 49° , 44° D) 84° , 246° , 92°

Answer: A

92) A rectangular Persian carpet has a perimeter of 232 inches. The length of the carpet is 24 inches more than the width. What are the dimensions of the carpet?

- A) 70 in., 94 in. B) 46 in., 70 in. C) 92 in., 116 in. D) 104 in., 128 in.

Answer: B

93) A pie-shaped (triangular) lake-front lot has a perimeter of 1300 feet. One side is 300 feet longer than the shortest side, while the third side is 400 feet longer than the shortest side. Find the lengths of all three sides.

- A) 300 ft, 300 ft, 300 ft B) 200 ft, 500 ft, 600 ft C) 300 ft, 600 ft, 700 ft D) 100 ft, 200 ft, 300 ft

Answer: B

94) A salesperson earned \$300 a week plus a bonus of \$16 for each service contract sold. If the pay one week was \$428 how many service contracts were sold?

- A) 8 contracts B) 2 contracts C) 19 contracts D) 6 contracts

Answer: A

95) Suppose the sales of a particular brand of appliance satisfy the relationship $S = 170x + 2300$, where S represents the number of appliances sold in year x, with $x = 0$ corresponding to 1982. Find the number of appliances sold in 1997.

- A) 4680 appliances B) 4850 appliances C) 9530 appliances D) 9700 appliances

Answer: B

96) Bill swims at a speed of 6.1 mph in still water. The river he's in flows at a speed of 2.3 mph. How long will it take Bill to swim 2.1 mi upstream? Round your answer to the nearest tenth of an hour, if necessary.

- A) 0.6 hr B) 8 hr C) 1.8 hr D) 0.3 hr

Answer: A

97) Jan swims at a speed of 4.9 mph in still water. The river she's in flows at a speed of 3.4 mph. How long will it take Jan to swim 1.3 mi downstream? Round your answer to the nearest tenth of an hour, if necessary.

- A) 0.9 hr B) 10.8 hr C) 0.2 hr D) 6.4 hr

Answer: C

98) A plane traveling 390 mph in still air encounters a 60-mph headwind. How long will it take the plane to travel 660 mi into the wind? Round your answer to the nearest tenth of an hour, if necessary.

- A) 0.5 hr B) 2 hr C) 217,800 hr D) 1.5 hr

Answer: B

99) A speedboat moves at a rate of 24 km/hr in still water. How long will it take someone to ride the boat 87 km downstream if the river's current moves at a rate of 5 km/hr?

- A) 0.3 hr B) 2523 hr C) 3 hr D) 4 hr

Answer: C

100) A speedboat moves at a rate of 24 km/hr in still water. How long will it take someone to ride the boat 136 km upstream if the river's current moves at a rate of 7 km/hr?

- A) 8 hr B) 0.1 hr C) 2312 hr D) 4 hr

Answer: A

101) A plane climbs from an altitude of 14,000 ft to a cruising altitude of 35,000 ft. The plane ascends at a rate of 10,500 ft/min. How long will it take to reach cruising altitude?

- A) 2 min B) 4 min C) 220,500,000 min D) 0.5 min

Answer: A

Choose the number that is a solution of the inequality.

102) $a - 2 < -3$

- A) 2 B) -2 C) 1 D) 3

Answer: B

103) $f + 4 < -5$

- A) -9 B) -7 C) -6 D) -10

Answer: D

104) $12n + 9 > 11n + 6$

- A) -4 B) -6 C) -5 D) -2

Answer: D

105) $-8n + 11 \leq -9n + 10$

- A) -1 B) 1 C) 2 D) 0

Answer: A

106) $12t + 2 \geq 11t - 3$

- A) -8 B) -5 C) -7 D) -6

Answer: B

Write interval notation.

107) $\{x | x > 7\}$

- A) $[7, \infty)$ B) $(-\infty, 7]$ C) $(-\infty, 7)$ D) $(7, \infty)$

Answer: D

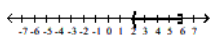
108) $\{x | x < -7\}$

- A) $(-7, \infty)$ B) $(-\infty, -7)$ C) $(-\infty, -7]$ D) $[-7, \infty)$

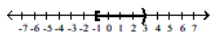
Answer: B

- 109) $\{x|x \geq -2\}$
 A) $(-\infty, -2]$ B) $(-2, \infty)$ C) $(-\infty, -2)$ D) $[-2, \infty)$
 Answer: D
- 110) $\{x|x \leq 4\}$
 A) $(4, \infty)$ B) $[4, \infty)$ C) $(\infty, 4)$ D) $(-\infty, 4]$
 Answer: D
- 111) $\{x|-5 \leq x \leq -1\}$
 A) $(-5, -1]$ B) $(-5, -1)$ C) $[-5, -1)$ D) $[-5, -1]$
 Answer: D
- 112) $\{x|-5 < x < -1\}$
 A) $(-5, -1]$ B) $[-5, -1)$ C) $(-5, -1)$ D) $[-5, -1]$
 Answer: C
- 113) $\{x|-6 \leq x < -2\}$
 A) $(-6, -2)$ B) $[-6, -2]$ C) $(-6, -2]$ D) $[-6, -2)$
 Answer: D

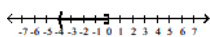
Write interval notation for the graph.



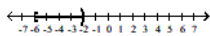
- 114)
 A) $[2, 6)$ B) $[2, 6]$ C) $(2, 6)$ D) $(2, 6]$
 Answer: D



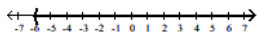
- 115)
 A) $(-3, 1]$ B) $(-1, 3]$ C) $[-1, 3)$ D) $[-3, 1)$
 Answer: C



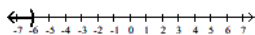
- 116)
 A) $[-4, 0)$ B) $[-4, 0]$ C) $(-4, 0)$ D) $(-4, 0]$
 Answer: D



- 117)
 A) $(2, 6]$ B) $(-6, -2]$ C) $[2, 6)$ D) $[-6, -2)$
 Answer: D



- 118)
 A) $[-6, \infty)$ B) $(-\infty, -6)$ C) $(-6, \infty)$ D) $(-\infty, -6]$
 Answer: C



119)

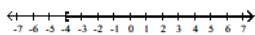
A) $(-\infty, -6)$

B) $(-6, -\infty)$

C) $[-6, \infty)$

D) $(-\infty, -6]$

Answer: A



120)

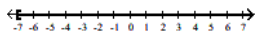
A) $[-4, \infty)$

B) $(-\infty, -4)$

C) $(-4, \infty)$

D) $(-\infty, -4]$

Answer: A



121)

A) $(-\infty, -7)$

B) $[-7, \infty)$

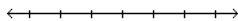
C) $(-7, \infty)$

D) $(-\infty, -7]$

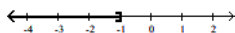
Answer: B

Solve and graph. Write the result in interval notation.

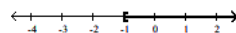
122) $z + 9 < 8$



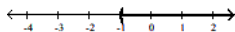
A) $(-\infty, -1]$



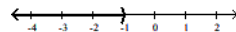
B) $[-1, \infty)$



C) $(-1, \infty)$

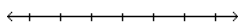


D) $(-\infty, -1)$

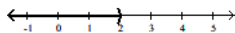


Answer: D

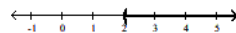
123) $a + 11 > 13$



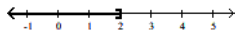
A) $(-\infty, 2)$



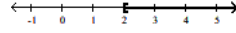
B) $(2, \infty)$



C) $(-\infty, 2]$

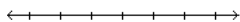


D) $[2, \infty)$

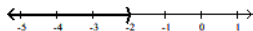


Answer: B

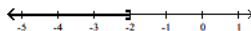
124) $f + 6 \leq 4$



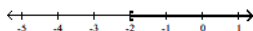
A) $(-\infty, -2)$



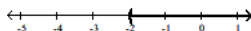
B) $(-\infty, -2]$



C) $[-2, \infty)$

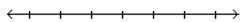


D) $(-2, \infty)$



Answer: B

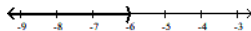
125) $f - 9 < -15$



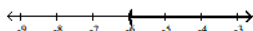
A) $[-6, \infty)$



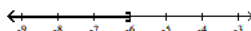
B) $(-\infty, -6)$



C) $(-6, \infty)$

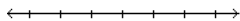


D) $(-\infty, -6]$

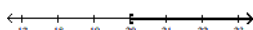


Answer: B

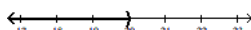
126) $0.2x > 4$



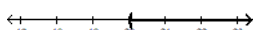
A) $[20, \infty)$



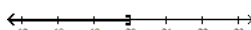
B) $(-\infty, 20)$



C) $(20, \infty)$

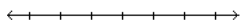


D) $(-\infty, 20]$

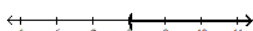


Answer: C

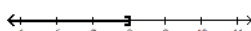
127) $5x \leq 40$



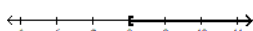
A) $(8, \infty)$



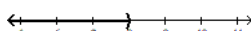
B) $(-\infty, 8]$



C) $[8, \infty)$

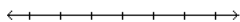


D) $(-\infty, 8)$

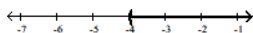


Answer: B

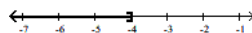
128) $2x < -8$



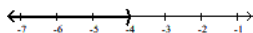
A) $(-4, \infty)$



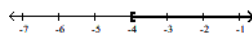
B) $(-\infty, -4]$



C) $(-\infty, -4)$

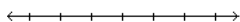


D) $[-4, \infty)$

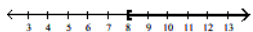


Answer: C

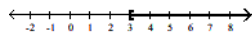
129) $\frac{3}{8}x \geq 3$



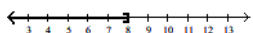
A) $[8, \infty)$



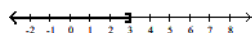
B) $[3, \infty)$



C) $(\infty, 8]$

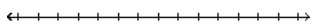


D) $(\infty, 3]$

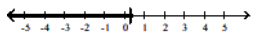


Answer: A

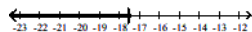
130) $\frac{2}{5}x < -7$



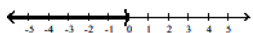
A) $\left(-\infty, \frac{5}{14}\right)$



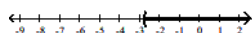
B) $\left(\infty, -\frac{35}{2}\right)$



C) $\left(\infty, -\frac{2}{35}\right)$



D) $\left(-\frac{14}{5}, \infty\right)$



Answer: B

Solve.

131) $-0.8x \geq -0.3$

A) $(-\infty, 0.5]$

B) $(-\infty, 0.375]$

C) $[-0.5, \infty)$

D) $[0.375, \infty)$

Answer: B

$$132) -\frac{1}{2}x \leq -\frac{7}{8}$$

$$A) \left[-\infty, \frac{7}{16}\right]$$

$$B) \left[\frac{7}{4}, \infty\right)$$

$$C) \left[-\infty, \frac{7}{4}\right]$$

$$D) \left[\frac{7}{16}, \infty\right)$$

Answer: B

$$133) 4x + 2 < 30$$

$$A) (-\infty, 7]$$

$$B) (7, \infty)$$

$$C) [7, \infty)$$

$$D) (-\infty, 7)$$

Answer: D

$$134) 11x + 27 \geq 2x - 18$$

$$A) (-\infty, 5]$$

$$B) (-\infty, -5)$$

$$C) [-5, \infty)$$

$$D) (5, \infty)$$

Answer: C

$$135) 10x + 12 > 2(4x + 14)$$

$$A) (-\infty, 10)$$

$$B) (-\infty, 8)$$

$$C) (8, \infty)$$

$$D) (10, \infty)$$

Answer: C

$$136) 4(3w + 4) \geq 4(2w + 12)$$

$$A) (-\infty, 8]$$

$$B) (-\infty, 16]$$

$$C) [16, \infty)$$

$$D) [8, \infty)$$

Answer: D

$$137) 1.1x - 3.2 > 0.6x + 0.5$$

$$A) (-\infty, 7.4)$$

$$B) (7.4, \infty)$$

$$C) (-\infty, 7.41)$$

$$D) (7.41, \infty)$$

Answer: B

$$138) 1.2x - 3 \geq 0.7x + 13.5$$

$$A) [33, \infty)$$

$$B) (-\infty, 33]$$

$$C) (-\infty, 33)$$

$$D) (3.3, \infty)$$

Answer: A

$$139) 4(5x - 4) - 36 \leq 13x - 3$$

$$A) [-7, \infty)$$

$$B) (-\infty, 7)$$

$$C) (-\infty, 7]$$

$$D) (-7, \infty)$$

Answer: C

$$140) -3(k + 8) < 3 + (-4k + 9)$$

$$A) (-\infty, -4)$$

$$B) (-\infty, -30)$$

$$C) (-\infty, -36)$$

$$D) (-\infty, 36)$$

Answer: D

$$141) -6x - (9x + 5) > 8 - (6x + 6)$$

$$A) (-\infty, 1)$$

$$B) \left[-\frac{7}{9}, \infty\right)$$

$$C) \left(-\infty, -\frac{7}{9}\right)$$

$$D) (-\infty, -1)$$

Answer: C

$$142) 3(3x + 1) < 8 - 5(3x - 3)$$

$$A) \left(-\infty, \frac{1}{3}\right)$$

$$B) \left[-\frac{1}{3}, \infty\right)$$

$$C) \left(\frac{5}{6}, \infty\right)$$

$$D) \left(-\infty, \frac{5}{6}\right)$$

Answer: D

143) $-3(2x + 1) \geq 2[3x - 2(x + 1)]$

A) $\left[-\infty, -\frac{1}{8}\right]$

B) $\left[-\infty, -\frac{7}{4}\right]$

C) $\left[\frac{1}{8}, \infty\right)$

D) $\left[-\infty, \frac{1}{8}\right]$

Answer: D

144) $\frac{1}{2}(x - 2) > \frac{1}{4}(7x - 2)$

A) $\left[-\infty, -\frac{2}{5}\right)$

B) $\left[-\frac{2}{5}, \infty\right)$

C) $\left[\frac{2}{5}, \infty\right)$

D) $\left[-\infty, \frac{2}{5}\right)$

Answer: A

145) $\frac{1}{21}(3x + 2) \leq -\frac{1}{3} + \frac{1}{7}(4x + 1)$

A) $\left[-\infty, \frac{2}{3}\right]$

B) $\left[\frac{2}{3}, \infty\right)$

C) $\left[-\frac{2}{3}, \infty\right)$

D) $\left[\frac{2}{3}, \infty\right)$

Answer: B

146) $\frac{5}{4}(4x - 5) > 30$

A) $\left[\frac{29}{4}, \infty\right)$

B) $\left[\infty, \frac{19}{4}\right)$

C) $\left[\frac{19}{4}, \infty\right)$

D) $\left[\infty, \frac{29}{4}\right)$

Answer: A

147) $-4 - (3x + 1) \leq 5(x - 5) + 2x$

A) $\left[\frac{11}{5}, \infty\right)$

B) $(\infty, 2]$

C) $[2, \infty)$

D) $\left[\infty, \frac{11}{5}\right]$

Answer: C

148) $\frac{1}{4}(16x + 36) - 36 > -\frac{1}{2}(10x - 18)$

A) $[4, \infty)$

B) $[2, \infty)$

C) $(\infty, 4]$

D) $(\infty, 2]$

Answer: A

149) $0.2(3x - 1) < 1.3 - (x + 3)$

A) $\left[\frac{45}{16}, \infty\right)$

B) $\left[\infty, -\frac{15}{16}\right)$

C) $\left[-\frac{15}{16}, \infty\right)$

D) $\left[\infty, \frac{45}{16}\right)$

Answer: B

150) In order for a chemical reaction to take place, the Fahrenheit temperature F of the reagents must be at least 197.57° F. At what Celsius temperatures C will the reaction occur? $\left(F = \frac{9}{5}C + 32\right)$

A) $\{C | C \geq 91.98^\circ\}$

B) $\{C | C \leq 91.98^\circ\}$

C) $\{C | C < 387.63^\circ\}$

D) $\{C | C \geq 387.63^\circ\}$

Answer: A

- 151) In order for a chemical reaction to remain stable, its Celsius temperature C must be no more than 147.02°C . At what Fahrenheit temperatures F will the reaction remain stable. $\left(F = \frac{9}{5}C + 32\right)$
- A) $\{F \mid F \leq 63.9^\circ\}$ B) $\{F \mid F \geq 63.9^\circ\}$ C) $\{F \mid F \leq 296.64^\circ\}$ D) $\{F \mid F \geq 296.64^\circ\}$

Answer: C

- 152) The equation $y = 0.002x - 0.10$ can be used to determine the profit y , in dollars, of producing x items. How many items x must be produced so the profit will be at least \$3757?
- A) $\{x \mid 0 < x \leq 1,878,549\}$ B) $\{x \mid x \geq 1,878,550\}$
 C) $\{x \mid x \geq 1,877,550\}$ D) $\{x \mid x \geq 1,878,450\}$

Answer: B

- 153) A salesperson has two job offers. Company A offers a weekly salary of \$160 plus commission of 8% of sales. Company B offers a weekly salary of \$320 plus commission of 4% of sales. What is the amount of sales above which Company A's offer is the better of the two?
- A) \$8000 B) \$2000 C) \$4100 D) \$4000

Answer: D

- 154) Company A rents copiers for a monthly charge of \$120 plus 6 cents per copy. Company B rents copiers for a monthly charge of \$240 plus 3 cents per copy. What is the number of copies above which Company A's charges are the higher of the two?
- A) 4100 copies B) 4000 copies C) 2000 copies D) 8000 copies

Answer: B

- 155) Jon has 897 points in his math class. He must have 88% of the 1200 points possible by the end of the term to receive credit for the class. What is the minimum number of additional points he must earn by the end of the term to receive credit for the class?
- A) 789 points B) 303 points C) 159 points D) 1056 points

Answer: C

- 156) Photography reprints cost \$0.52 each at a local photo shop. Through the mail, they cost \$0.44 each plus \$1.20 postage and handling. How many reprints must a customer purchase to make it less expensive to use mail order?
- A) $\{n \mid n > 16 \text{ reprints}\}$ B) $\{n \mid n > 18 \text{ reprints}\}$ C) $\{n \mid n > 15 \text{ reprints}\}$ D) $\{n \mid n > 19 \text{ reprints}\}$

Answer: C

Find the indicated intersection or union.

- 157) $\{1, 5, 14, 18, 21\} \cap \{5, 18, 21, 26\}$
- A) $\{5, 18, 21, 26\}$ B) $\{5, 18, 21\}$ C) $\{1, 5, 18, 21\}$ D) $\{1, 5, 14, 18, 21, 26\}$

Answer: B

- 158) $\{1, 7, 13, 17\} \cup \{7, 17, 21, 26\}$
- A) $\{7, 17\}$ B) $\{7, 17, 21\}$ C) $\{1, 7, 17, 21\}$ D) $\{1, 7, 13, 17, 21, 26\}$

Answer: D

- 159) $\{q, s, u, v, w, x, y, z\} \cap \{q, s, y, z\}$
- A) $\{q, s, y, z\}$ B) $\{q, s, u, v, w, y\}$ C) $\{v, x\}$ D) $\{s, u, v, w, x, z\}$

Answer: A

160) $\{q, s, u, v, w, x, y, z\} \cup \{q, s, y, z\}$

A) $\{v, x\}$

C) $\{s, u, v, w, x, z\}$

B) $\{s, u, w\}$

D) $\{q, s, u, v, w, x, y, z\}$

Answer: D

161) $\{q, s, u, v, w, x, y, z\} \cap \{s\}$

A) $\{s, u, w\}$

B) $\{q, s, u, v, w, x, y\}$

C) $\{s\}$

D) $\{v, x\}$

Answer: C

162) $\{v, w, x, y, z\} \cup \{q, s, y, z\}$

A) $\{q, s, v, w, x, y, z\}$

B) $\{q, s, u, v, w, x, y\}$

C) $\{s, u, v, w, x, z\}$

D) $\{s, u, w\}$

Answer: A

163) $\{q, s, u, v, w, x\} \cap \emptyset$

A) $\{q\}$

B) $\{q, s, u, v, w, x\}$

C) $\{q, s, u, v, w\}$

D) $\emptyset$

Answer: D

164) $\{q, s, u, v, w, x\} \cup \emptyset$

A) $\emptyset$

B) $\{q, s, u, v, w\}$

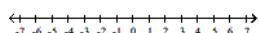
C) $\{q\}$

D) $\{q, s, u, v, w, x\}$

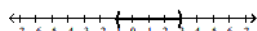
Answer: D

Graph and write interval notation.

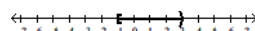
165) $-1 \leq x \leq 3$



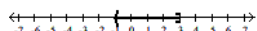
A) $(-1, 3)$



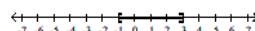
B) $[-1, 3)$



C) $(-1, 3]$

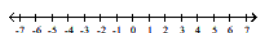


D) $[-1, 3]$

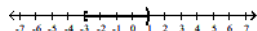


Answer: D

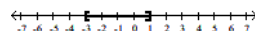
166) $-3 < x < 1$



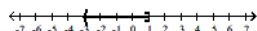
A) $[-3, 1)$



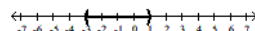
B) $[-3, 1]$



C) $(-3, 1]$

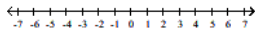


D) $(-3, 1)$

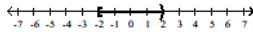


Answer: D

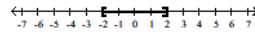
167) $-2 \leq x < 2$



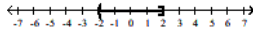
A) $[-2, 2)$



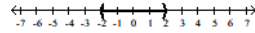
B) $[-2, 2]$



C) $(-2, 2]$

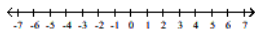


D) $(-2, 2)$

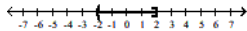


Answer: A

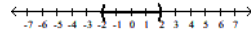
168) $x \leq 2$ and $x \geq -2$



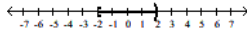
A) $(-2, 2]$



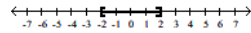
B) $(-2, 2)$



C) $[-2, 2)$

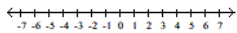


D) $[-2, 2]$

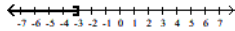


Answer: D

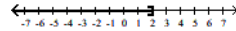
169) $x \geq 2$ and $x \geq -3$



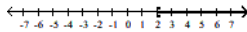
A) $(-\infty, -3]$



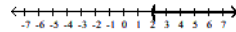
B) $(-\infty, 2]$



C) $[2, \infty)$

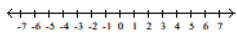


D) $(2, \infty)$

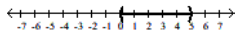


Answer: C

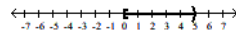
170) $x > 0$ and $x < 5$



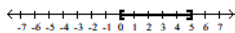
A) $(0, 5)$



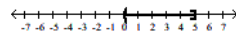
B) $[0, 5]$



C) $[0, 5]$

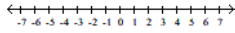


D) $(0, 5]$

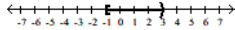


Answer: A

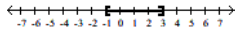
171) $x < 3$ and $x > -1$



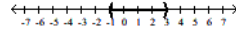
A) $[-1, 3)$



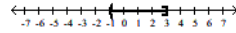
C) $[-1, 3]$



B) $(-1, 3)$



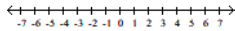
D) $(-1, 3]$



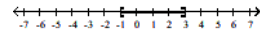
Answer: B

Solve and graph.

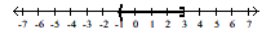
172) $7x - 6 \geq -13$ and $7x - 6 \leq 15$



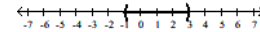
A) $[-1, 3]$



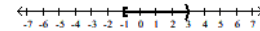
C) $(-1, 3)$



B) $(-1, 3)$

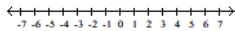


D) $[-1, 3)$

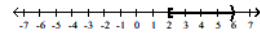


Answer: A

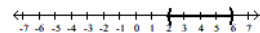
173) $7 < 4x - 1$ and $6x - 5 < 31$



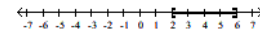
A) $[2, 6)$



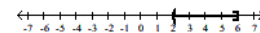
C) $(2, 6)$



B) $[2, 6]$

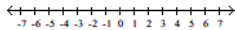


D) $(2, 6]$

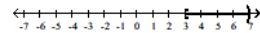


Answer: C

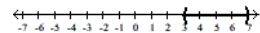
174) $24 \leq 5x + 9$ and $5x - 5 < 30$



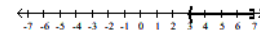
A) $[3, 7)$



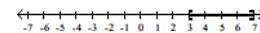
C) $(3, 7)$



B) $(3, 7]$

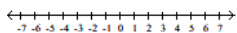


D) $[3, 7]$

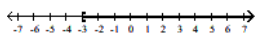


Answer: A

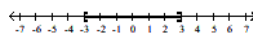
175) $5x - 1 \geq -16$ and $9x - 1 \geq 26$



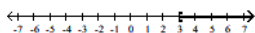
A) $[-3, \infty)$



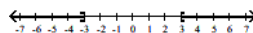
B) $[-3, 3]$



C) $[3, \infty)$

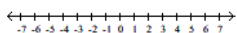


D) $(-\infty, -3] \cup [3, \infty)$

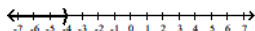


Answer: C

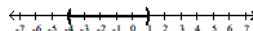
176) $4x - 2 < -18$ and $-3 - 5x > -8$



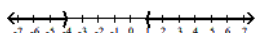
A) $(-\infty, -4)$



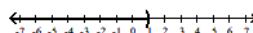
B) $(-4, 1)$



C) $(-\infty, -4) \cup (1, \infty)$

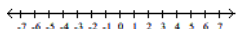


D) $(-\infty, 1)$

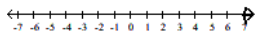


Answer: A

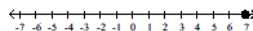
177) $4x - 10 \leq 18$ and $2x - 1 \geq 13$



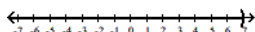
A) $(7, \infty)$



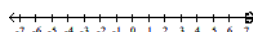
B) $\{7\}$



C) $(-\infty, 7)$

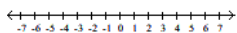


D) $[7, \infty)$



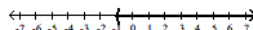
Answer: B

178) $4x > 4$ and $x + 5 < 5$

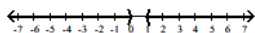


A) $\emptyset$

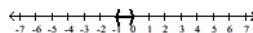
B) $(-1, \infty)$



C) $(0, 1)$

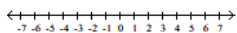


D) $(-1, 0)$



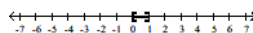
Answer: A

179) $5x - 1 < 4$ and $x - 2 > -1$

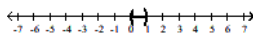


A) $\emptyset$

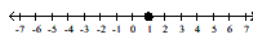
B) $[0, 1]$



C) $(0, 1)$



D) $\{1\}$



Answer: A

Solve.

180) $-9 < x + 7 < 3$

A) $(-2, 10)$

B) $(-10, 2)$

C) $(-16, 10)$

D) $(-16, -4)$

Answer: D

181) $12 < 4x \leq 20$

A) $[3, 5)$

B) $(-3, -5]$

C) $[-3, -5)$

D) $(3, 5]$

Answer: D

182) $6 \geq -x > -7$

A) $(-6, 7]$

B) $(-7, 6]$

C) $[6, 7)$

D) $[-6, 7)$

Answer: D

183) $7 \leq 2t + 3 \leq 13$

A) $(2, 5)$

B) $[2, 5]$

C) $[-5, -2]$

D) $(-5, -2)$

Answer: B

184) $-9 \leq -2c + 1 < -7$

A) $(4, 5]$

B) $(-5, -4]$

C) $[-5, -4)$

D) $[4, 5)$

Answer: A

185) $-21 \leq -5z + 4 \leq -6$

A) $[-5, -2]$

B) $(2, 5)$

C) $(-5, -2)$

D) $[2, 5]$

Answer: D

186) $-7 < \frac{3 - 5x}{7} \leq 10$

A) $\left[\frac{67}{5}, \frac{52}{5}\right)$

B) $\left(\frac{67}{5}, \frac{52}{5}\right]$

C) $\left[-\frac{67}{5}, \frac{52}{5}\right)$

D) $\left[-\frac{67}{5}, \frac{52}{5}\right]$

Answer: C

187) $6 \leq \frac{9}{2}x - 3 < 42$

A) $[2, 10)$

B) $[2, 3)$

C) $(2, 10]$

D) $(2, 3]$

Answer: A

$$188) -6 < \frac{5x - 28}{4} \leq -3$$

$$A) \left[\frac{4}{5}, \frac{16}{5} \right)$$

$$B) \left[\frac{4}{5}, \frac{16}{5} \right]$$

$$C) \left[\frac{4}{5}, 8 \right]$$

$$D) \left[\frac{4}{5}, 8 \right)$$

Answer: B

$$189) -\frac{1}{3} \leq \frac{3x - 1}{12} < \frac{1}{3}$$

$$A) \left[-1, \frac{5}{3} \right)$$

$$B) \left[-1, \frac{5}{3} \right]$$

$$C) \left[-\frac{11}{9}, \frac{13}{9} \right)$$

$$D) \left[-1, \frac{5}{3} \right)$$

Answer: A

$$190) -\frac{3}{5} < \frac{1}{25}x - 2 \leq \frac{3}{5}$$

$$A) (-65, -35]$$

$$B) [-13, 13]$$

$$C) (35, 65]$$

$$D) (-13, 17]$$

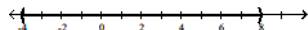
Answer: C

Solve the compound inequality. Express the solution using interval notation. Graph the solution set.

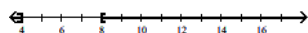
$$191) x \leq 4 \text{ or } x \geq 8$$



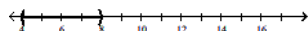
$$A) (-4, 8)$$



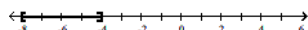
$$B) (-\infty, 4] \cup [8, \infty)$$



$$C) (4, 8)$$

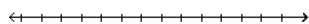


$$D) [-8, -4]$$

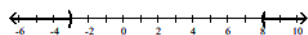


Answer: B

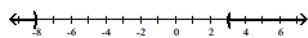
192) $x < -3$ or $x > 8$



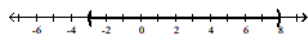
A) $(-\infty, -3) \cup (8, \infty)$



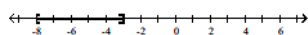
B) $(-\infty, -8) \cup (3, \infty)$



C) $(-3, 8)$

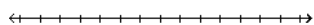


D) $[-8, -3]$

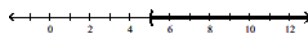


Answer: A

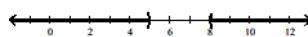
193) $x < 5$ or $x < 8$



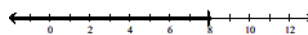
A) $(5, \infty)$



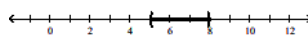
B) $(-\infty, 5) \cup (8, \infty)$



C) $(-\infty, 8)$

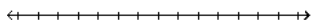


D) $(5, 8)$

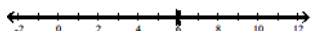


Answer: C

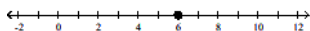
194) $x > 6$ or $x < 6$



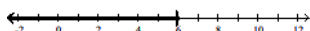
A) $(-\infty, 6) \cup (6, \infty)$



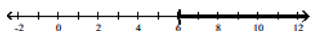
B) $(6, 6)$



C) $(-\infty, 6)$



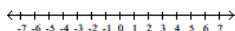
D) $(6, \infty)$



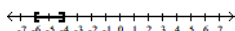
Answer: A

Solve and graph.

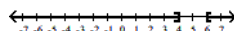
195) $x \leq 4$ or $x \geq 6$



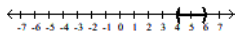
A) $[-6, -4]$



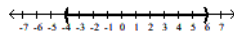
B) $(-\infty, 4] \cup [6, \infty)$



C) $(4, 6)$

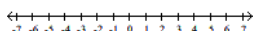


D) $(-4, 6)$

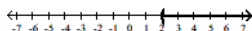


Answer: B

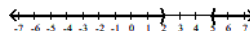
196) $x < 2$ or $x < 5$



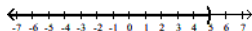
A) $(2, \infty)$



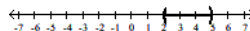
B) $(-\infty, 2) \cup (5, \infty)$



C) $(-\infty, 5)$

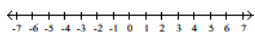


D) $(2, 5)$

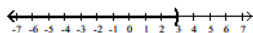


Answer: C

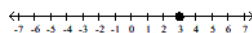
197) $x > 3$ or $x < 3$



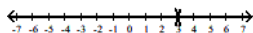
A) $(-\infty, 3)$



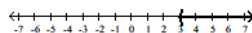
B) $\{3\}$



C) $(-\infty, 3) \cup (3, \infty)$

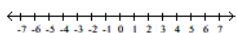


D) $(3, \infty)$



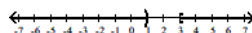
Answer: C

198) $12x - 8 < 4x$ or $-3x \leq -9$

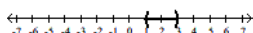


A) $\emptyset$

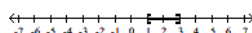
B) $(-\infty, 1) \cup [3, \infty)$



C) $(1, 3)$

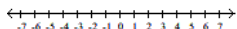


D) $[1, 3]$

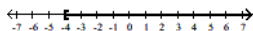


Answer: B

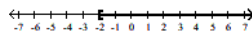
199) $-7x + 1 \geq 15$ or $6x + 3 \geq -21$



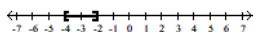
A) $[-4, \infty)$



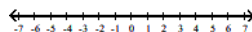
B) $[-2, \infty)$



C) $[-4, -2]$



D) $(-\infty, \infty)$



Answer: D

Solve.

200) $1 - 3x \geq 7$ or $5x + 3 \geq -17$

A) $[-2, \infty)$

B) $[-4, -2]$

C) $[-4, \infty)$

D) $(-\infty, \infty)$

Answer: D

201) $6x + 4 \leq -26$ or $8x - 2 \geq -34$

A) $[-4, \infty)$

B) $[-5, -4]$

C) $[-5, \infty)$

D) $(-\infty, -5] \cup [-4, \infty)$

Answer: D

202) $4 \leq 2t - 2$ or $12 \geq 2t - 2$

A) $(-\infty, \infty)$

B) $[-7, -3]$

C) $(\infty, 3] \cup [7, \infty)$

D) $[3, 7]$

Answer: A

203) $-3c + 5 \leq -13$ or $-3c + 5 > -1$

A) $(-\infty, 2) \cup [6, \infty)$

B) $(-\infty, \infty)$

C) $(2, 6]$

D) $(-\infty, -6] \cup (-2, \infty)$

Answer: A

204) $1 - 4x \geq 6$ or $1 - 4x < 2$

A) $\left[-\frac{5}{4}, -\frac{1}{4}\right]$

B) $\left(-\infty, -\frac{5}{4}\right] \cup \left[-\frac{1}{4}, \infty\right)$

C) $\left(-\infty, -\frac{1}{4}\right] \cup \left[\frac{5}{4}, \infty\right)$

D) $\left[-\frac{5}{4}, \frac{1}{4}\right]$

Answer: B

205) $\frac{10 - 4x}{8} < -9$ or $\frac{10 - 4x}{8} \geq 8$

A) $\left(-\infty, -\frac{27}{2}\right] \cup \left[\frac{41}{2}, \infty\right)$

B) $\left[-\frac{27}{2}, \frac{41}{2}\right]$

C) $\left(-\infty, -\frac{27}{2}\right) \cup \left[\frac{41}{2}, \infty\right)$

D) $(-\infty, \infty)$

Answer: A

206) $\frac{4x - 1}{9} < -\frac{1}{3}$ or $\frac{4x - 1}{9} \geq \frac{1}{3}$

A) $(-\infty, \infty)$

B) $\left[-\frac{2}{3}, \frac{5}{6}\right]$

C) $\left[-\frac{1}{2}, 1\right]$

D) $\left(-\infty, -\frac{1}{2}\right) \cup [1, \infty)$

Answer: D

207) $\frac{9}{2}x + 4 \leq 13$ or $\frac{9}{2}x + 4 > 31$

A) $[2, 6)$

B) $(-\infty, 2] \cup (6, \infty)$

C) $(-\infty, -2] \cup (6, \infty)$

D) $(-\infty, \infty)$

Answer: B

208) $\frac{5x - 8}{4} < -13$ or $\frac{5x - 8}{4} \geq -3$

A) $\left(-\infty, -\frac{44}{5}\right) \cup [4, \infty)$

B) $(-\infty, \infty)$

C) $\left(-\infty, -\frac{44}{5}\right) \cup \left[-\frac{4}{5}, \infty\right)$

D) $\left[-\frac{44}{5}, -\frac{4}{5}\right]$

Answer: C

209) Using the formula to find Fahrenheit (F) in terms of Celsius (C), $F = \left(\frac{9}{5}\right)C + 32$, find the range (to the nearest tenth) of the Fahrenheit temperature when the range of the Celsius temperature is between 2°C and 10°C , inclusive.

A) Between 19.6°F and 34°F , inclusive

B) Between 33.1°F and 32.8°F , inclusive

C) Between 3.6°F and 18°F , inclusive

D) Between 35.6°F and 50°F , inclusive

Answer: D

210) Assume that the mathematical model $C(x) = 15x + 120$ represents the cost C, in hundreds of dollars, for a certain manufacturer to produce x items. How many items x can be manufactured while keeping costs between $\$462,000$ and $\$687,000$?

A) $\{x \mid 480 < x < 640\}$

B) $\{x \mid 320 < x < 480\}$

C) $\{x \mid 450 < x < 600\}$

D) $\{x \mid 300 < x < 450\}$

Answer: D

211) Suppose that the sales of a particular brand of appliance satisfy the relationship $S(x) = 110x + 1500$, where $S(x)$ represents the number of sales in year x , with $x = 0$ corresponding to 1990. For what years will sales be between 1830 and 2490?

- A) Between 1993 and 1999
C) Between 1992 and 1998

- B) Between 1993 and 1998
D) Between 4 and 10

Answer: A

212) Body mass index is given by the formula $I = \frac{704.5W}{H^2}$. Mary's height is 58 in. What weights W will allow Mary to

keep her body mass index I between 18.5 and 25?

- A) $\{W \mid 104.3 \text{ lb} < W < 124.5 \text{ lb}\}$
C) $\{W \mid 80.7 \text{ lb} < W < 107.6 \text{ lb}\}$

- B) $\{W \mid 1.5 \text{ lb} < W < 2.1 \text{ lb}\}$
D) $\{W \mid 88.3 \text{ lb} < W < 119.4 \text{ lb}\}$

Answer: D

Simplify.

213) $|8.4z|$

A) $-8.4z$

B) $-8.4|z|$

C) $8.4|z|$

D) $8.4z$

Answer: C

214) $|12x^2|$

A) $12x^2$

B) $|12|x^2|$

C) $12|x^2|$

D) $12x$

Answer: A

215) $|-6x^2|$

A) $6x$

B) $6x^2$

C) $6|x^2|$

D) $-6x^2$

Answer: B

216) $|-5x|$

A) $5|x|$

B) $-5x$

C) $5x$

D) $|5|x|$

Answer: A

217) $\left|\frac{-7}{x}\right|$

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

B) $\frac{7}{|x|}$

C) $\frac{|-7|}{x}$

D) $\frac{-7}{x}$

Answer: B

218) $\left|\frac{x}{11}\right|$

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

B) $\frac{|x|}{-11}$

C) $\frac{|x|}{11}$

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

Answer: C

219) $\left| \frac{x^2}{-y} \right|$

A) $\left| \frac{x^2}{-y} \right|$

B) $\frac{x^2}{y}$

C) $\frac{x^2}{|y|}$

D) $\frac{x^2}{|-y|}$

Answer: C

220) $\left| \frac{-16x^2}{8x} \right|$

A) $|2x|$

B) $2x$

C) $-2x$

D) $2|x|$

Answer: D

221) $\left| \frac{6y}{3y^2} \right|$

A) $\frac{2|y|}{y^2}$

B) $\frac{2}{|y|}$

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

D) $\frac{2|y|}{|y^2|}$

Answer: B

Find the distance between the points on a number line.

222) 3, -9

A) -6

B) 6

C) -12

D) 12

Answer: D

223) -3, 14

A) 11

B) -11

C) -17

D) 17

Answer: D

224) 15, -8

A) 7

B) 23

C) -23

D) -7

Answer: B

225) -8, 7

A) -1

B) -15

C) 1

D) 15

Answer: D

226) 15.0, 6.4

A) 4.3

B) 21.4

C) 10.7

D) 8.6

Answer: D

227) $-\frac{1}{2}, -\frac{4}{7}$

A) $\frac{14}{15}$

B) $\frac{1}{14}$

C) $\frac{15}{14}$

D) 14

Answer: B

Solve.

228) $|x| = 8$

A) $\{-8\}$

B) $\{8, -8\}$

C) $\{8\}$

D) $\{64\}$

Answer: B

229) $|x| = -6$

A) $\{6\}$

B) $\{-6\}$

C) $\{6, -6\}$

D) $\emptyset$

Answer: D

230) $|x| = -8.4$

A) $\{-8.4\}$

B) $\{8.4\}$

C) $\emptyset$

D) $\{7056\}$

Answer: C

231) $|x - 7| = 2$

A) $\{-9, -5\}$

B) $\emptyset$

C) $\{9, 5\}$

D) $\{9\}$

Answer: C

232) $|t + 6| = 0$

A) $\emptyset$

B) $\{6\}$

C) $\{-6\}$

D) $\{-6, 6\}$

Answer: C

233) $|8x - 6| = 5$

A) $\left\{-\frac{11}{8}, -\frac{1}{8}\right\}$

B) $\left\{\frac{1}{8}, \frac{11}{8}\right\}$

C) $\left\{-\frac{13}{6}, -\frac{1}{2}\right\}$

D) $\left\{\frac{1}{2}, \frac{13}{6}\right\}$

Answer: B

234) $|2x - 12| = 10$

A) $\{-11, -1\}$

B) $\{1, 11\}$

C) $\{-11, 1\}$

D) $\{11\}$

Answer: B

235) $|2x + 3| = 7$

A) $\{-2, 5\}$

B) $\emptyset$

C) $\{2, -5\}$

D) $\left\{\frac{4}{3}, -\frac{10}{3}\right\}$

Answer: C

236) $|x| + 9 = 20$

A) $\{-20, 20\}$

B) $\{-11, 11\}$

C) $\{-20\}$

D) $\{11\}$

Answer: B

237) $|5x| = 50$

A) $\{250\}$

B) $\{10\}$

C) $\{-10, 10\}$

D) $\{45\}$

Answer: C

238) $|7x| = 5$

A) $\left\{-\frac{5}{7}\right\}$

B) $\left\{-\frac{5}{7}, \frac{5}{7}\right\}$

C) $\left\{-\frac{7}{5}, \frac{7}{5}\right\}$

D) $\left\{\frac{5}{7}\right\}$

Answer: B

239) $|5x| = 0$
 A) $\{0\}$ B) $\{-5, 0\}$ C) $\{-5, 5\}$ D) $\{0, 5\}$

Answer: A

240) $|7x| + 8 = 14$
 A) $\emptyset$ B) $\left\{\frac{6}{7}, -\frac{6}{7}\right\}$ C) $\left\{\frac{7}{6}, -\frac{7}{6}\right\}$ D) $\{6, -6\}$

Answer: B

241) $|x + 5| - 3 = 13$
 A) $\{-11, 11\}$ B) $\{-5, 11\}$ C) $\{15, 11\}$ D) $\{-21, 11\}$

Answer: D

242) $|4x + 9| + 4 = 10$
 A) $\left\{-\frac{15}{4}, -\frac{3}{4}\right\}$ B) $\left\{-\frac{3}{4}\right\}$ C) $\left\{-\frac{15}{4}, -\frac{3}{4}\right\}$ D) $\left\{-\frac{15}{4}, -\frac{3}{4}\right\}$

Answer: C

243) $9|x| + 10 = 15$
 A) $\left\{\frac{25}{9}\right\}$ B) $\left\{\frac{5}{9}\right\}$ C) $\left\{\frac{5}{9}, -\frac{5}{9}\right\}$ D) $\left\{\frac{25}{9}, -\frac{25}{9}\right\}$

Answer: C

244) $5|x + 3| - 2 = 5$
 A) $\left\{-\frac{8}{5}\right\}$ B) $\left\{-\frac{22}{5}\right\}$ C) $\left\{-\frac{8}{5}, \frac{12}{5}\right\}$ D) $\left\{-\frac{8}{5}, -\frac{22}{5}\right\}$

Answer: D

245) $\left|\frac{7x-1}{7}\right| = 4$
 A) $\emptyset$ B) $\left\{-\frac{29}{7}\right\}$ C) $\left\{\frac{27}{7}\right\}$ D) $\left\{\frac{29}{7}, -\frac{27}{7}\right\}$

Answer: D

246) $|x - 4| = -7$
 A) $\{-11, 3\}$ B) $\{11, -3\}$ C) $\{11\}$ D) $\emptyset$

Answer: D

247) $|4x - 3| = -9$
 A) $\left\{-3, \frac{3}{2}\right\}$ B) $\emptyset$ C) $\left\{-\frac{5}{3}, \frac{13}{3}\right\}$ D) $\left\{-\frac{3}{2}, 3\right\}$

Answer: B

248) $\left|\frac{3}{4} + 2x\right| = \frac{5}{6}$
 A) $\left\{-\frac{19}{24}, \frac{1}{24}\right\}$ B) $\left\{\frac{1}{24}\right\}$ C) $\left\{-\frac{1}{24}, \frac{19}{24}\right\}$ D) $\left\{\frac{19}{24}\right\}$

Answer: A

249) $|a + 4| = |a - 8|$

A) $\left\{-\frac{1}{2}\right\}$

B) $\{2\}$

C) $\{4\}$

D) $\emptyset$

Answer: B

250) $|2s + 2| = |s - 4|$

A) $\{-6\}$

B) $\emptyset$

C) $\left\{6, -\frac{2}{3}\right\}$

D) $\left\{-6, \frac{2}{3}\right\}$

Answer: D

251) $|7x - 6| = |8x - 3|$

A) $\left\{-3, \frac{3}{5}\right\}$

B) $\{-9, 1\}$

C) $\left\{\frac{1}{5}, -9\right\}$

D) $\{9, 1\}$

Answer: A

252) $|3x + 10| = |7 - 4x|$

A) $\left\{-\frac{17}{7}, 1\right\}$

B) $\left\{3, -\frac{17}{7}\right\}$

C) $\left\{\frac{17}{7}, 1\right\}$

D) $\left\{-\frac{3}{7}, 17\right\}$

Answer: D

253) $|m - 3| = |6 - m|$

A) $\left\{\frac{9}{2}\right\}$

B) $\{9\}$

C) $\emptyset$

D) $\left\{-\frac{2}{9}\right\}$

Answer: A

254) $|y - 4| = |4 - y|$

A) all real numbers

B) $\emptyset$

C) $\{4\}$

D) $\{0\}$

Answer: A

255) $|8x + 10| = |5 - 10x|$

A) $\left\{-\frac{5}{18}\right\}$

B) $\emptyset$

C) $\left\{-\frac{5}{18}, \frac{15}{2}\right\}$

D) $\left\{-\frac{5}{18}, -\frac{15}{2}\right\}$

Answer: C

256) $\left|\frac{4 - 3x}{7}\right| = \left|\frac{7x - 3}{4}\right|$

A) $\left\{\frac{19}{52}, \frac{5}{4}\right\}$

B) $\left\{\frac{37}{61}, \frac{5}{37}\right\}$

C) $\left\{\frac{37}{61}\right\}$

D) $\left\{\frac{19}{52}\right\}$

Answer: B

257) $\left|\frac{1}{6}x - 2\right| = \left|\frac{2}{5}x + 4\right|$

A) $\left\{-\frac{6}{7}\right\}$

B) $\left\{-\frac{180}{7}, -\frac{60}{17}\right\}$

C) $\left\{-\frac{180}{7}\right\}$

D) $\left\{-\frac{6}{7}, -\frac{2}{17}\right\}$

Answer: B

Solve the absolute value inequality. Write the solution set using interval notation.

258) $|x| > 4$

A) $(4, \infty)$

B) $(-4, \infty)$

C) $(-\infty, -4) \cup (4, \infty)$

D) $(-4, 4)$

Answer: C

259) $|x| \leq 18$

A) $(-\infty, -18] \cup [18, \infty)$

B) $(-\infty, 18]$

C) $(-\infty, -18]$

D) $[-18, 18]$

Answer: D

260) $|6x - 3| \geq 5$

A) $\left[\frac{4}{3}, \infty\right)$

B) $\left[-\frac{1}{3}, \frac{4}{3}\right]$

C) $\left(-\infty, -\frac{4}{3}\right] \cup [5, \infty)$

D) $\left(-\infty, -\frac{1}{3}\right] \cup \left[\frac{4}{3}, \infty\right)$

Answer: D

261) $|2x + 2| < 3$

A) $\left(-\infty, -\frac{5}{2}\right) \cup \left(\frac{1}{2}, \infty\right)$

B) $\left(-\infty, -\frac{5}{2}\right)$

C) $\left(-\frac{5}{2}, \frac{1}{2}\right)$

D) $(-\infty, 2)$

Answer: C

262) $|r + 4.2| < 7$

A) $(-2.8, 11.2)$

B) $(-\infty, -2.8) \cup (11.2, \infty)$

C) $(-11.2, 2.8)$

D) $(-\infty, -11.2) \cup (2.8, \infty)$

Answer: C

263) $|b + 4| - 4 > 5$

A) $(-\infty, -13) \cup (5, \infty)$

B) $(-13, 5)$

C) $(-\infty, 3) \cup (13, \infty)$

D) $(-\infty, -13) \cup (-3, \infty)$

Answer: A

264) $2|x + 2| < 4$

A) $(-\infty, -4) \cup (0, \infty)$

B) $(-4, 0)$

C) $(0, 4)$

D) $(-\infty, 0) \cup (4, \infty)$

Answer: B

265) $7|x + 8| \geq 6$

A) $\left[-\frac{50}{7}, -\frac{62}{7}\right)$

B) $\left(-\infty, -\frac{62}{7}\right] \cup \left[-\frac{50}{7}, \infty\right)$

C) $\left(-\infty, \frac{62}{7}\right] \cup \left[\frac{50}{7}, \infty\right)$

D) $\left(-\infty, -\frac{50}{7}\right] \cup \left[-\frac{62}{7}, \infty\right)$

Answer: B

266) $\left|\frac{x - 7}{3}\right| \geq 5$

A) $(-\infty, -8] \cup [22, \infty)$

B) $(-8, 22)$

C) $(-\infty, -8] \cap [22, \infty)$

D) $[-8, 22]$

Answer: A

267) $\left|\frac{1 - 4x}{6}\right| \leq 3$

A) $\left[-\frac{17}{4}, \frac{19}{4}\right]$

B) $\emptyset$

C) $\left(-\infty, -\frac{17}{4}\right) \cap \left(\frac{19}{4}, \infty\right)$

D) $\left(-\infty, -\frac{17}{4}\right] \cup \left[\frac{19}{4}, \infty\right)$

Answer: A

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

Provide an appropriate response..

268) Which one of these is not a linear equation?

- a) $6y^2 - 3y + 1 = 0$ b) $0.07x - 0.09x = 0.57$
c) $5t - 11t = -6t$ d) $7x + 9(x - 2) = -5x$

Answer: (a) is not a linear equation.

269) True or false: The solution of the equation $7y - 6 = 7y + 3$ is zero.

Answer: False. It has no solution.

270) True or False: This pair of equations is equivalent.

$$8x - 9 = 47 \text{ and } 4x + 2 = 30$$

Answer: True. Each has solution 7.

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

271) Which two of the following equations do not correctly state the relationship between distance, rate and time?

(a) $\frac{d}{t} = r$ (b) $dr = t$

(c) $\frac{r}{t} = d$ (d) $\frac{d}{r} = t$

A) (b) & (c)

B) (a) & (c)

C) (a) & (d)

D) (b) & (d)

Answer: A

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

272) The three-part inequality $a < x \leq b$ means "a is less than x and x is less than or equal to b". Which of these inequalities is not satisfied by any real number x?

- (a) $-5 < x \leq -11$
(b) $-8 < x \leq -7$
(c) $0 < x \leq 4$
(d) $-2 < x \leq 6$

Answer: Choice (a).

273) Under what conditions must the inequality symbol be reversed when solving an inequality?

Answer: When multiplying or dividing by a negative number.

274) Give a definition or an example of the word or phrase. Closed interval linear inequality

Answer: An inequality such as $a \leq x \leq b$

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

275) Give an equation or inequality that states that the distance between $3x$ and -4 is equal to 10.

A) $3x - 4 < 10$

B) $3x + 4 = 10$

C) $|3x + 4| = 10$

D) $|3x + 4| < 10$

Answer: C