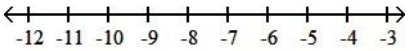
Exam

Name_____

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

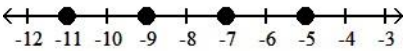
On the real number line, label the points with the given coordinates.

1) -11, -9, -7, -5



1) _____

A)



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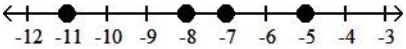

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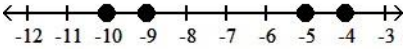

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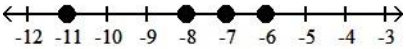
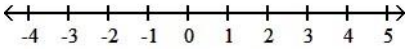
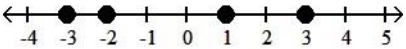


2) -3.75, -1, 1, 3.25



2) _____

A)



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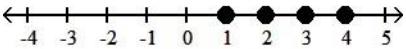

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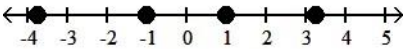

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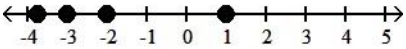
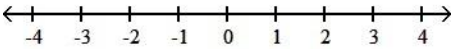
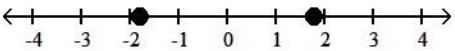


3) $\frac{11}{5}$, - $\frac{11}{5}$



3) _____

A)



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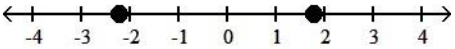
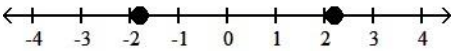


C)



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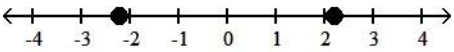


Insert <, >, or = to make the statement true.

4) -5 ____ -6 4) _____

A) < B) = C) >

5) -7.8 ____ -7.7 5) _____

A) = B) < C) >

6) -54 ____ -62 6) _____

A) < B) > C) =

7) 16 ____ -16 7) _____

A) > B) = C) <

8) $\frac{1}{4}$ ____ 0.25 8) _____

A) = B) > C) <

9) 1.73 ____ $\sqrt{3}$ 9) _____

A) > B) = C) <

10) 3.14 ____ π 10) _____

A) > B) = C) <

Write the statement as an inequality.

11) y is positive

A) $y \le 0$ B) $y \ge 0$ C) $y < 0$ D) $y > 0$

11) _____

12) y is greater than -43

A) $y < -43$ B) $y > -43$ C) $y \ge -43$ D) $y \le -43$

12) _____

13) y is greater than or equal to 50

A) $y < 50$ B) $y \le 50$ C) $y \ge 50$ D) $y > 50$

13) _____

14) z is less than or equal to -2

A) $z = -2$ B) $z > -2$ C) $z \le -2$ D) $z < -2$

14) _____

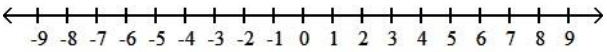
15) x is less than 5

A) $x > 5$ B) $x < 5$ C) $x \le 5$ D) $x \ge 5$

15) _____

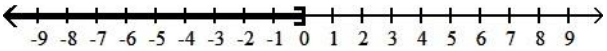
Graph the numbers on the real number line.

16) $x > 0$



16) _____

A)



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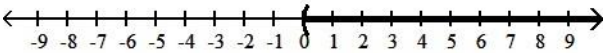

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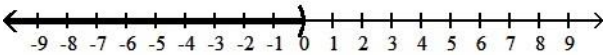
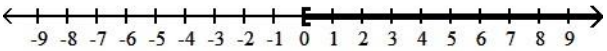
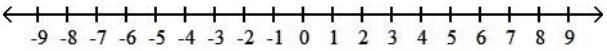


D)

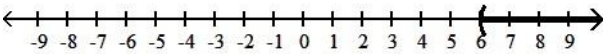


17) $x < 6$



17) _____

A)



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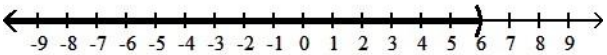

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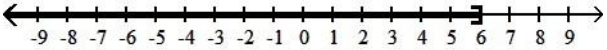

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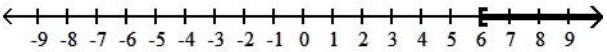
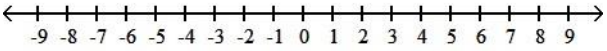
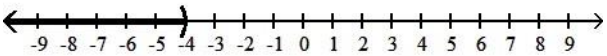


18) $x \ge -4$

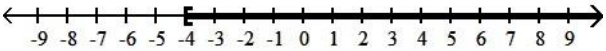


18) _____

A)



B)



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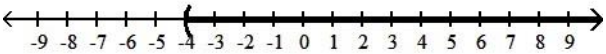
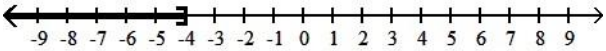
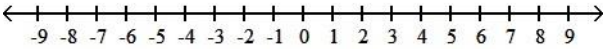


D)

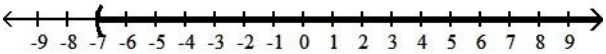


19) $x \leq -7$

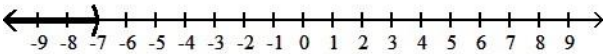


19) _____

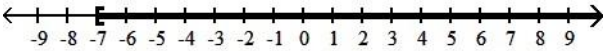
A)



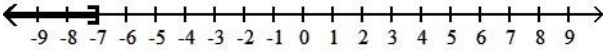
B)



C)

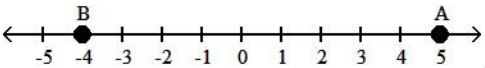


D)



Use the given real number line to compute the distance.

20) Find d(A, B)



20) _____

A) 8 B) 9 C) 10 D) -9

Evaluate the expression using the given values.

21) $x + 2y$ $x = -2, y = -1$

A) -3 B) 0 C) -4 D) -5

21) _____

22) $-9xy + 8y - 7$ $x = 2, y = 2$

A) -13 B) -27 C) -20 D) 45

22) _____

23) $-8x + y$ $x = -4, y = 3$

A) 35 B) -29 C) -5 D) -1

23) _____

24) $\frac{7x - 3y}{15}$ x = 6, y = 2 24) _____

A) $\frac{13}{5}$ B) $\frac{4}{15}$ C) $\frac{16}{5}$ D) $\frac{12}{5}$

25) $\frac{8x - 12y}{x + 8}$ x = 5, y = 2 25) _____

A) $\frac{44}{13}$ B) $\frac{8}{5}$ C) $\frac{16}{13}$ D) $\frac{22}{5}$

26) $\frac{5xy + 30}{x}$ x = 5, y = 7 26) _____

A) 11 B) 41 C) 6 D) 65

27) $|x + y|$ x = -8, y = 2
A) 6 B) -10 C) -6 D) 10
27) _____

28) $|x| - |y|$ x = -5, y = 8
A) -3 B) 3 C) -13 D) 13
28) _____

29) $|6x - 7y|$ x = 5, y = 7
A) -19 B) 19 C) -79 D) 79
29) _____

30) $\frac{|x|}{x} + \frac{|y|}{y}$ x = 3 and y = -4 30) _____

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

31) $|-4x - 9y|$ x = -4, y = 3
A) 48 B) 24 C) 43 D) 11
31) _____

32) $4|x| + 5|y|$ x = 2, y = -9
A) -53 B) 37 C) 53 D) -37
32) _____

Use the formula C = $\frac{5}{9}$(F - 32) for converting degrees Fahrenheit into degrees Celsius to find the Celsius measure of the Fahrenheit temperature.

33) F = 158°
A) 70° C B) 65° C C) 75° C D) 80° C

33) _____

Express the statement as an equation involving the indicated variables.

34) The area A of a rectangle is the product of its length l and its width w.

A) $A = l + w$ B) $A = \frac{l}{w}$ C) $A = lw$ D) $A = 2(l + w)$

34) _____

35) The perimeter P of a rectangle is twice the sum of its length l and its width w.

A) $P = lw$ B) $P = 2lw$ C) $P = l + w$ D) $P = 2(l + w)$

35) _____

36) The circumference C of a circle is the product of π and its diameter d.

A) $C = \pi d$ B) $C = \pi + d$ C) $C = 2\pi d$ D) $C = \frac{\pi}{d}$ 36) _____

37) The area A of a triangle is one-half the product of its base b and its height h.

A) $A = 2bh$ B) $A = bh$ C) $A = \frac{1}{2}(b + h)$ D) $A = \frac{1}{2}bh$ 37) _____

38) The volume V of a sphere is $\frac{4}{3}$ times π times the cube of the radius r. 38) _____

A) $V = \frac{4}{3}\pi r^3$ B) $V = \frac{4}{3}\pi r$ C) $V = \frac{4}{3}\pi \sqrt[3]{r}$ D) $V = \frac{4}{3}\pi r^2$

39) The surface area S of a sphere is 4 times π times the square of the radius r.

A) $S = \pi r^2$ B) $S = 4\pi r$ C) $S = 4\pi \sqrt{r}$ D) $S = 4\pi r^2$ 39) _____

40) The volume V of a cube is the cube of the length x of a side.

A) $V = x^2$ B) $V = x^3$ C) $V = 3x$ D) $V = \sqrt[3]{x}$ 40) _____

41) The surface area S of a cube is 6 times the square of the length x of a side.

A) $S = x^2$ B) $S = 6 + x^2$ C) $S = 6x$ D) $S = 6x^2$ 41) _____

Solve the problem.

42) The weekly production cost C of manufacturing x calendars is given by $C(x) = 34 + 6x$, where the variable C is in dollars. What is the cost of producing 270 calendars? 42) _____

A) \$1620.00 B) \$304.00 C) \$1654.00 D) \$9186.00

43) At the beginning of the month, Christopher had a balance of \$ 240 in his checking account. During the next month, he wrote a check for \$ 37, deposited \$ 67, and wrote another check for \$ 236. What was his balance at the end of the month?

43) _____

A) -$100 B) -$34 C) $100 D) $34

Determine which value(s), if any, must be excluded from the domain of the variable in the expression.

44) $\frac{x^2 - 64}{x}$ 44) _____

A) x = 8, x = -8 B) x = 8, x = 0 C) x = 0 D) x = -8

45) $\frac{8x - 5}{x^2 - 25}$ 45) _____

A) x = $\frac{5}{8}$ B) x = 5, x = -5 C) x = 5 D) x = 25

46) $\frac{x^3 + 8x^4}{x^2 + 25}$ 46) _____

A) x = -25 B) x = -5 C) x = 0, x = - $\frac{1}{8}$ D) none

47) $\frac{x^2 + 6x + 7}{x^3 - 25x}$ 47) _____

A) x = 0 B) x = 5, x = 0
C) x = 5, x = -5, x = 0 D) x = 5, x = -5

48) $\frac{x}{x - 8}$ 48) _____

A) x = 0 B) x = 8 C) x = -8 D) none

49) $\frac{5}{x + 7}$ 49) _____

A) x = -7 B) x = 0 C) x = 7 D) none

50) $\frac{x - 8}{x - 3}$ 50) _____

A) x = 0 B) x = 3 C) x = -3 D) none

Simplify the expression.

51) 5^3
A) -15 B) 15 C) 125 D) -125
51) _____

52) -6^2

A) -12 B) 36 C) 12 D) -36
52) _____

53) 4^{-2}
A) 16 B) -16 C) $\frac{1}{8}$ D) $\frac{1}{16}$ 53) _____

54) $(-2)^{-4}$
A) 16 B) $\frac{1}{16}$ C) -16 D) - $\frac{1}{16}$ 54) _____

55) -5^{-4}
A) 625 B) - $\frac{1}{625}$ C) -625 D) $\frac{1}{20}$ 55) _____

56) $(-5)^3$
A) -125 B) 125 C) 15 D) -15
56) _____

57) $5^{-5} \cdot 5^2$
A) 125 B) $\frac{1}{125}$ C) 25 D) $\frac{1}{625}$ 57) _____

58) $(2^{-3})^{-1}$
A) $\frac{1}{8}$ B) 4 C) 8 D) $\frac{1}{4}$ 58) _____

Simplify the expression. Express the answer so that all exponents are positive. Whenever an exponent is 0 or negative, we assume that the base is not 0.
59) $(5xy)^3$
A) $\frac{1}{125x^3y^3}$ B) $125x^3y^3$ C) $5x^3y^3$ D) 125xy
59) _____

60) $(6x^3)^{-2}$
A) $\frac{x^6}{36}$ B) $36x^6$ C) $\frac{36}{x^6}$ D) $\frac{1}{36x^6}$
60) _____

61) $(-3x^3)^{-1}$

A) $-\frac{1}{3x^3}$ B) $\frac{1}{27x^3}$ C) $\frac{1}{3x^3}$ D) $-\frac{1}{27x^3}$ 61) _____

62) $(x^3y^{-1})^9$

A) $\frac{1}{x^{27}y^9}$ B) $x^{27}y^9$ C) $\frac{x^{27}}{y^9}$ D) $\frac{y^9}{x^{27}}$ 62) _____

63) $(x^{-7}y)^5$

A) $\frac{1}{x^{35}y^5}$ B) $\frac{y^5}{x^7}$ C) $\frac{y^5}{x^{35}}$ D) $x^{35}y^5$

63) _____

64) $\frac{x^{-2}y^6}{xy^8}$ 64) _____

A) $\frac{x}{y^2}$ B) $\frac{1}{xy^2}$ C) $\frac{y^2}{x^3}$ D) $\frac{1}{x^3y^2}$

65) $\frac{x^{-4}y^4}{x^6y^{13}}$ 65) _____

A) $\frac{x^{10}}{y^9}$ B) $x^{10}y^9$ C) $\frac{1}{x^{10}y^9}$ D) $\frac{y^9}{x^{10}}$

66) $\left(\frac{4x^{-1}}{9y^{-1}}\right)^{-3}$ 66) _____

A) $\frac{64y^3}{729x^3}$ B) $\frac{729x^3}{64y^3}$ C) $\frac{64x^3}{729y^3}$ D) $\frac{729y^3}{64x^3}$

67) $\left(\frac{4x^{-3}}{7y^{-3}}\right)^{-1}$ 67) _____

A) $\frac{4x^{31}}{7y^{31}}$ B) $\frac{7y^3}{4x^3}$ C) $\frac{4x^3}{7y^3}$ D) $\frac{7x^3}{4y^3}$

68) $(x^{-4}y^9)^{-8}z^6$

A) $\frac{x^{32}}{y^{72}z^6}$ B) $\frac{x^{32}z^6}{y^{72}}$ C) $\frac{y^{72}z^6}{x^{32}}$ D) $\frac{y^{72}}{x^{32}z^6}$ 68) _____

69) $\left(\frac{-4x^3y^{-3}}{5z^2}\right)^{-2}$ 69) _____

A) $\frac{16x^6}{25y^6z^4}$ B) $\frac{25y^6}{16x^6z^4}$ C) $\frac{25y^6z^4}{16x^6}$ D) $\frac{25z^4}{16x^6y^6}$

Evaluate the expression using the given value of the variables.

70) $(x + 3y)^2$ for x = 4, y = 2

A) 49 B) 20 C) 10 D) 100

70) _____

71) $-7x^{-1}y^2$ for x = -2, y = -2

A) $\frac{7}{8}$ B) 56 C) 14 D) $\frac{2}{7}$ 71) _____

72) $2x^2 + 4y^2$ for x = -2, y = -2

A) 0 B) -8 C) 12 D) 24

72) _____

73) $2x^3 - 3x^2 - 3x - 2$ for x = 2

A) 0 B) 8 C) 20 D) -4

73) _____

Solve.

74) What is the value of $\frac{(6666)^2}{(2222)^2}$? 74) _____

A) 18 B) $(3333)^2$ C) $(2222)^2$ D) 9

Simplify the expression.

75) $\sqrt{9}$

A) 81 B) $\frac{1}{9}$ 75) _____

C) 3 D) not a real number

76) $\sqrt{(-5)^2}$

A) 5 B) $\frac{1}{25}$ 76) _____

C) 625 D) not a real number

Find the value of the expression using the given values.

77) $\sqrt{x^2}$ x = 4

A) -4 B) 4 C) $-2\sqrt{2}$ D) $2\sqrt{2}$ 77) _____

78) $(\sqrt{x})^2$ x = 3

A) 9 B) 3 C) $\frac{1}{9}$ D) $\frac{1}{3}$ 78) _____

79) $\sqrt{x^2 + y^2}$ x = 15, y = 20

A) 24 B) 25 C) 18 D) 13

79) _____

80) $\sqrt{x^2 + y^2}$ x = -5, y = 3

A) $\sqrt{34}$ B) 8 C) 15 D) -2

80) _____

81) $\sqrt{x^2} + \sqrt{y^2}$ x = 1, y = 5

A) 4 B) 26 C) -4 D) 6

81) _____

82) y^x x = -2, y = 4

A) -16 B) $\frac{1}{16}$ C) 16 D) - $\frac{1}{16}$ 82) _____

Use a calculator to evaluate the expression. Round the answer to three decimal places.

83) $(-2.86)^{-5}$

A) -0.005 B) 0.005 C) 191.351 D) -191.351

83) _____

84) $-(-3.51)^{-4}$

A) -151.785 B) -0.007 C) 0.007 D) 151.785

84) _____

85) $(-5.41)^{-2}$

A) -29.268 B) 0.034 C) -0.034 D) 29.268

85) _____

Write the number in scientific notation.

86) 1467

A) 1.467×10^3 B) 1.467×10^1 C) 1.467×10^{-3} D) 1.467×10^4 86) _____

87) 79.8

A) 7.98×10^{-1} B) 7.98×10^1 C) 7.98×10^{-2} D) 7.98×10^2 87) _____

88) 581.29
A) 5.8129×10^{2} B) 5.8129×10^{1} C) 5.8129×10^{-2} D) 5.8129×10^{-1} 88) _____

89) 54,000
A) 5.4×10^{-3} B) 5.4×10^{3} C) 5.4×10^{4} D) 5.4×10^{-4} 89) _____

90) 4,200,000
A) 4.2×10^{7} B) 4.2×10^{6} C) 4.2×10^{-7} D) 4.2×10^{-6} 90) _____

91) 0.000 134
A) 1.34×10^{-3} B) 1.34×10^{-5} C) $1.34 \circ 10^{-4}$ D) 1.34×10^{4} 91) _____

92) 0.0000 841 19
A) $8.41\ 19 \times 10^{-5}$ B) $8.41\ 19 \times 10^{4}$ C) $8.41\ 19 \pm 10^{-4}$ D) $8.41\ 19 \times 10^{5}$ 92) _____

93) 0.00000 429 14
A) $4.29\ 14 \times 10^{-6}$ B) $4.29\ 14 \times 10^{-5}$ C) $4.29\ 14 \times 10^{-7}$ D) $4.29\ 14 \times 10^{6}$ 93) _____

94) 0.000000 351 0 16
A) $3.51\ 0\ 16 \times 10^{7}$ B) $3.51\ 0\ 16 \times 10^{-7}$ C) $3.51\ 0\ 16 \times 10^{-6}$ D) $3.51\ 0\ 16 \times 10^{6}$ 94) _____

95) 0.0000000 151 0 2
A) $1.51\ 0\ 2 \times 10^{8}$ B) $1.51\ 0\ 2 \times 10^{-7}$ C) $1.51\ 0\ 2 \times 10^{-9}$ D) $1.51\ 0\ 2 \times 10^{-8}$ 95) _____

96) In a certain city, the subway system carried a total of 1,240,000,000 passengers.
A) 12.4×10^{9} B) 1.24×10^{10} C) 1.24×10^{8} D) 1.24×10^{9} 96) _____

97) A business projects next year's profits to be $ 934,000,000.
A) 9.34×10^{8} B) 9.34×10^{9} C) 9.34×10^{-9} D) 9.34×10^{7} 97) _____

98) A computer compiles a program in 0.000575 seconds.
A) 5.75×10^{3} B) 5.75×10^{-4} C) 5.75×10^{-6} D) 5.75×10^{-5} 98) _____

Write the number as a decimal.
99) 6.98×10^{5}
A) 69,800 B) 349 C) 6,980,000 D) 698,000
99) _____

100) 3.205×10^5

A) 3,205,000 B) 320,500 C) 32,050 D) 160.25

100) _____

101) 4.0056×10^7

A) 400,560,000 B) 4,005,600 C) 280.392 D) 40,056,000

101) _____

102) 4.47×10^{-4}

A) -4 47,000 B) 0.00 4 47 C) 0.0000 4 47 D) 0.000 4 47

102) _____

103) 6.378×10^{-5}

A) -6 37,800 B) 0.000 6 378 C) 0.00000 6 378 D) 0.0000 6 378

103) _____

104) 6.141×10^{-6}

A) 0.000000 6 141 B) -6, 141,000 C) 0.00000 6 141 D) 0.0000 6 141

104) _____

105) 2.0692×10^{-7}

A) -2 0 6920, 0 0 0 B) 0.00000 2 0 692

105) _____

C) 0.0000000 2 0 692 D) 0.000000 2 0 692

106) There are 2.988×10^2 miles of highways, roads, and streets in a certain city.

A) 29,880 B) 29.88 C) 2988 D) 298.8

106) _____

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

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

102) D
103) D
104) C
105) D
106) D