MAT0022 - Chapter 9
Math Connections
Valencia College

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

9.2

Use a commutative property to complete the statement.

1) $7 + x =$ 1) _____

2) $yc =$ 2) _____

Use an associative property to complete the statement.

3) $(9x + 2y) + 4z =$ 3) _____

4) $4 \cdot (az) =$ 4) _____

Use the distributive property to rewrite the algebraic expression without parentheses. Then simplify the result, if possible.

5) $8(x + 2)$ 5) _____

6) $7(x - 5)$ 6) _____

Name the property illustrated by the statement.

7) $(3 + 5) + 4 = (5 + 3) + 4$ 7) _____

8) $9 + 3 = 3 + 9$ 8) _____

9) $(8 \cdot 5) \cdot 6 = 8 \cdot (5 \cdot 6)$ 9) _____

10) $8 \cdot 4 = 4 \cdot 8$ 10) _____

11) $22 + (4 + 18) = (22 + 4) + 18$ 11) _____

12) $8(x + 3) = 8x + 8 \cdot 3$ 12) _____

13) $7 \cdot 1 = 7$ 13) _____

14) $3 + 0 = 3$ 14) _____

15) $6 + (-6) = 0$ 15) _____

16) $\frac{1}{7} \cdot 7 = 1$ 16) _____

9.3

Solve the equation.

17) $8x - (6x - 1) = 2$ 17) _____

18) $3(4x - 1) = 12$ 18) _____

19) $(y - 6) - (y + 5) = 3y$ 19) _____

20) $4x + 4(-2x - 5) = -15 - 9x$ 20) _____

21) $\frac{2x}{5} - \frac{x}{3} = 4$ 21) _____

22) $\frac{17}{10}x + \frac{2}{5} = \frac{8}{5}x$ 22) _____

23) $\frac{3(y - 2)}{5} = 1 - 3y$ 23) _____

24) $6.5m - 2.3 - 11.3m = -2.7 - 4.8m + 0.4$ 24) _____

25) $2x - 2 + 9x + 1 = 9x + 2x - 4$ 25) _____

26) $7(x + 6) = (7x + 42)$ 26) _____

27) $3(x + 2) - (3x + 6) = 0$ 27) _____

28) $\frac{x}{6} - 10 = \frac{x}{6}$ 28) _____

29) $4(x - 1) - 28 = 8x - 4(x + 4)$ 29) _____

9.4

Solve.

30) Four times a number, added to 5, is 1. Find the number. 30) _____

31) Three times the sum of some number and 3 is equal to 5 times the number minus 3. 31) _____

32) Six times some number added to 4 amounts to 13 added to the product of 3 and the number. 32) _____

33) Six times the sum of a number and -168 is -18. Find the number. 33) _____

34) The president of a certain university makes three times as much money as one of the department heads. If the total of their salaries is $270,000, find each worker's salary. 34) _____

35) A promotional deal for long distance phone service charges a $15 basic fee plus $0.05 per minute for all calls. If Joe's phone bill was $53 under this promotional deal, how many minutes of phone calls did he make? Round to the nearest integer, if necessary. 35) _____

36) Two angles are complementary if their sum is 90°. If the measure of the first angle is x°, and the measure of the second angle is (3x - 2)°, find the measure of each angle. 36) _____

37) A car rental agency advertised renting a luxury, full-size car for $29.95 per day and $0.29 per mile. If you rent this car for 5 days, how many whole miles can you drive if you only have $200 to spend. 37) _____

38) Mary and her brother John collect foreign coins. Mary has three times the number of coins that John has. Together they have 120 foreign coins. Find how many coins Mary has. 38) _____

39) Center City East Parking Garage has a capacity of 256 cars more than Center City West Parking Garage. If the combined capacity for the two garages is 1232 cars, find the capacity for each garage. 39) _____

40) During an intramural basketball game, Team A scored 12 fewer points than Team B. Together, both teams scored a total of 150 points. How many points did Team A score during the game? 40) _____

41) The sum of three consecutive integers is 531. Find the numbers. 41) _____

42) The house numbers of two adjacent homes are two consecutive even numbers. If their sum is 398, find the house numbers. 42) _____

43) The code to unlock a safety deposit box is three consecutive odd integers whose sum is 99. Find the integers. 43) _____

9.5

Solve.

44) You have taken up gardening for relaxation and have decided to fence in your new rectangular shaped masterpiece. The length of the garden is 12 meters and 46 meters of fencing is required to completely enclose it. What is the width of the garden? 44) _____

45) Ted drove to his grandparents' house for a holiday weekend. The total distance (one-way) was 290 miles and it took him 12 hours. How fast was Ted driving? (Round answer to the nearest whole number) 45) _____

46) Sally is making a cover for a round table. When finished, the cover will fit exactly with no excess hanging off. Sally has to cut the fabric circle with a 4 inch larger diameter than the table to allow for hemming. If the table has a diameter of 58 inches, how much fabric does Sally need? (Use 3.14 for π. Round to 2 decimal places.) 46) _____

47) Use the formula $F = \frac{9}{5}C + 32$ to write 70° C as degrees Fahrenheit. 47) _____

48) Use the formula $C = \frac{5}{9}(F - 32)$ to write 86° F as degrees Celsius. 48) _____

49) It took Sara's mother 8 hours round trip to drive to the University and bring Sara back home for spring break. If the University is 208 miles from home, find her mother's average speed. 49) _____

50) You are varnishing the background for a rectangular mural. The base of the mural is $7\frac{1}{2}$ meters and the height of the mural is 5 meters. How many cans of varnish will you need if each can covers 10 square meters? 50) _____

Substitute the given values into the formula and solve for the unknown variable.

51) $d = rt$; $t = 8$, $d = 72$ 51) _____

52) $P = 2L + 2W$; $P = 28$, $W = 9$ 52) _____

53) $V = \frac{1}{3}Bh$; $V = 21$, $h = 7$ 53) _____

54) $I = prt$; $I = 8.4$, $p = 120$, $r = 0.07$ 54) _____

55) $A = \frac{1}{2}(b + B)h$; $A = 90$, $b = 13$, $B = 17$ 55) _____

Solve the equation for the indicated variable.

56) $d = rt$ for r 56) _____

57) $I = Prt$ for r 57) _____

58) $A = \frac{1}{2}bh$ for b 58) _____

59) $V = \frac{1}{3}Ah$ for A 59) _____

60) $P = a + b + c$ for a 60) _____

61) $P = 2L + 2W$ for L 61) _____

62) $A = P + PRT$ for T 62) _____

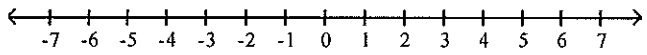
63) $F = \frac{9}{5}C + 32$ for C 63) _____

64) $A = \frac{1}{2}h(B + b)$ for B 64) _____

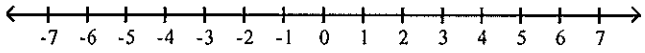
9.6

Graph on a number line.

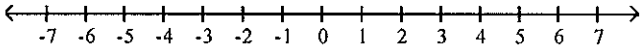
65) $x > 2$ 65) _____



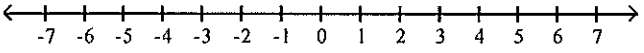
66) $x < -5$ 66) _____



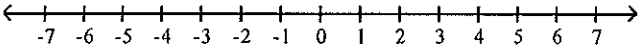
67) $5 \leq x$ 67) _____



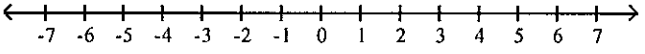
68) $x \leq 3$ 68) _____



69) $-3 \leq x \leq 1$ 69) _____

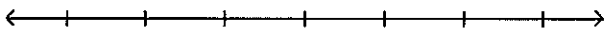


70) $2 < x < 6$ 70) _____

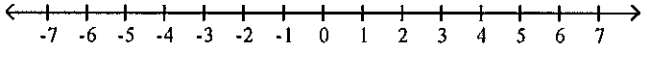


Solve the inequality. Graph the solution set and write it in interval notation.

71) $x + 12 < 16$ 71) _____



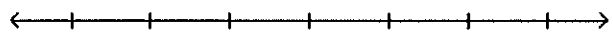
72) $-4 \leq x < 0$ 72) _____



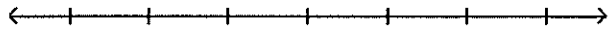
9.6 Inequalities Using Other Notation

Solve the inequality. Graph the solution set and write it in interval notation.

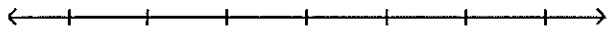
73) $12x + 11 > 11x + 6$ 73) _____



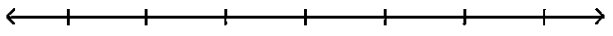
74) $-\frac{1}{6}x < 4$ 74) _____



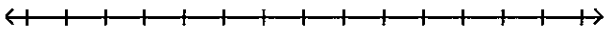
75) $15x + 24 > 3(4x + 9)$ 75) _____



76) $5x + 8 - 5x < 4 - 2x + 10$ 76) _____

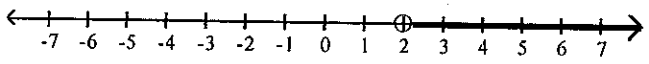


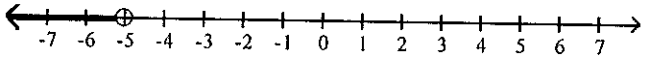
77) $\frac{5}{8}x \geq 9$ 77) _____



Answer Key
Testname: 22CH9

1) $x + 7$
2) cy
3) $9x + (2y + 4z)$
4) $(4a) \cdot z$
5) $8x + 16$
6) $7x - 35$
7) commutative property of addition
8) commutative property of addition
9) associative property of multiplication
10) commutative property of multiplication
11) associative property of addition
12) distributive property
13) identity element for multiplication
14) identity element for addition
15) additive inverse property
16) multiplicative inverse property
17) $\frac{1}{2}$
18) $\frac{5}{4}$
19) $-\frac{11}{3}$
20) 1
21) 60
22) -4
23) $\frac{11}{18}$
24) all real numbers
25) no solution
26) all real numbers
27) all real numbers
28) no solution
29) no solution
30) -1
31) 6
32) 3
33) 165
34) president's salary = \$202,500; department head's salary = \$67,500
35) 760 minutes
36) 1st angle = 23°; 2nd angle = 67°
37) 173 miles
38) 90 coins
39) Center City East: 744 cars
Center City West: 488 cars
40) 69 points
41) 176, 177, 178
42) 198, 200
43) 31, 33, 35
44) 11 m
45) 24 mph
46) 3017.54 in.^{2}
47) 158° F
48) 30° C
49) 52 mph
50) 4 cans of varnish
51) 9
52) 5
53) 9
54) 1
55) 6
56) $r = \frac{d}{t}$
57) $r = \frac{I}{Pt}$
58) $b = \frac{2A}{h}$
59) $A = \frac{3V}{h}$
60) $a = P - b - c$
61) $L = \frac{P - 2W}{2}$
62) $T = \frac{A - P}{PR}$
63) $C = \frac{5}{9}(F - 32)$
64) $B = \frac{2A - bh}{h}$

65)


66)


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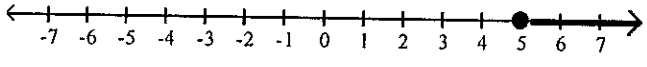

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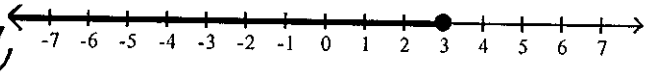

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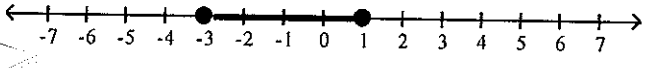

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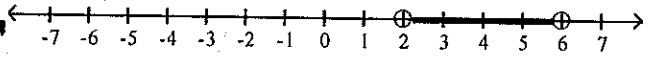
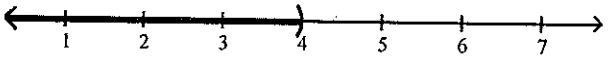
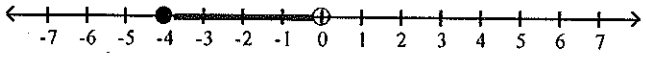
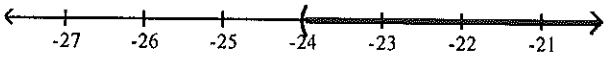


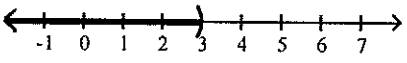
71) $(-\infty, 4)$


72)


73) $(-5, \infty)$


74) $(-24, \infty)$


75) $(1, \infty)$


76) $(-\infty, 3)$


* 77) $\left[\frac{72}{5}, \infty\right)$