

Section 2.8 – Chapter Summary

Problem Set 2

Write a mathematical expression for each statement using an appropriate variable.

1. five less than the quotient of a number and three
2. three times the difference of a number and seventeen
3. the quotient of twelve and a number

If $a = -2$ then simplify the following expressions.

4. $a + 4$
5. $\frac{a}{a+2}$
6. $4(2a - 7)$
7. $a^2 + 5a$
8. $-3a + 2$
9. $\frac{2a+4}{a+4}$

If $m = 3$ and $n = 0$ then simplify the following expressions.

10. $2m + 3n - 4$
11. $\frac{-2n}{m-n} + n$
12. $\frac{n-m-3}{3n}$
13. $4m + n^2$
14. $2m\left(\frac{n+1}{n^2-2}\right)$
15. $3m - 4n + n^2$

Give the name of the property that justifies each of the following equations.

16. $5 + 1 = 1 + 5$
17. $-2 \cdot 1 = 1 \cdot -2$
18. $(a + 1) + 2 = a + (1 + 2)$
19. $3x^2y = 3yx^2$
20. $-2(x - 4) = -2x + 8$

User the Distributive Property to simplify the following expressions.

21. $a(b + 3)$
22. $-3(2a - b + 4)$
23. $-2(1 + x)$
24. $ab(3 + c)$
25. $2x(y - 3)$

Draw the graph of each set on a number line.

26. The whole numbers less than 8.
27. The integers between -3 and -1.
28. The real numbers between -2.5 and 1.5.

Let $S = \{-6, -4, -2, 2, 4, 6\}$. Which of the following are true?

34. $0 \in S$
35. $\{-4, -2, 6\} \subset S$
36. $S \subset \mathbb{Z}$

Find the union and intersection of the following sets.

- 37. $A = \{1, 2, 3, 9\}, B = \mathbb{Z}$
- 38. $A = \{1, 2, 4, 5, 6, 8\}, B = \{1, 4, 6, 8, 9, 11, 13\}$
- 39. $A = \{\text{all odd numbers}\}, B = \{\text{positive odd numbers}\}$
- 40. $A = \{\text{house cats}\}, B = \{\text{animals with fur}\}$
- 41. $A = \{a, b, c, d, e, f, g, h, i, j\}, B = \{a, b, d, h, w, y, q, h\}$

Graph the intersection of the following sets.

- 42. $x \geq 4$ and $x < 7$
- 43. $x \geq 0$ and $x > 2$
- 44. $x < -3$ and $x > 5$

Graph the union of the following sets.

- 45. $x \geq 0$ and $x > 5$
- 46. $x \geq -3$ and $x < 2$
- 47. $x = 2$ and $x \leq 1$

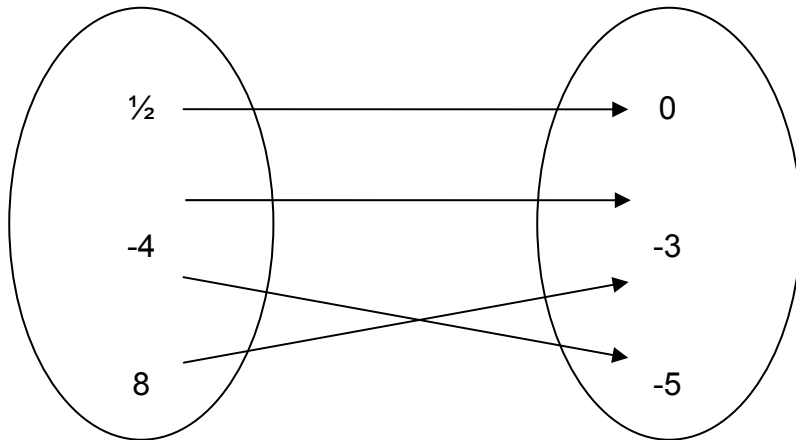
For each of the following functions, find the specified values.

- 48. If $f(x) = 2x^3 + 3x - 5$ then what is $f(3)$?
- 49. If $g(x) = 3x - 5/2$ then what are $g(-2)$ and $g(1)$?
- 50. If $h(x) = \frac{x+4}{x-3} - 4$ then what are $h(3)$ and $h(4)$?

Write the given relation in the specified format.

- 51. $f(x) = -2x^2 + 3$ for $x = 1, 3, 5$ as a diagram.

52.



as a list.

53. The following table as a list

x	y or $f(x)$
1	0
2	1
3	2
4	3

Given the following functions and their domains, find the corresponding ranges.

54. $h(x) = -x^2 - 4, D = \{0, 2, 4\}$

55. $f(x) = x^3 - 2x + 1, D = \{-1, 0, 1\}$

56. $f(x) = \frac{x^2 + 1}{x}, D = \{-1, 1, 4, 5\}$