

Study Guide: Review

Vocabulary

| | | | |
|----------------------|----|--------------------|----|
| algebraic expression | 50 | inverse operations | 70 |
| constant | 50 | solution | 66 |
| equation | 66 | variable | 50 |
| evaluate | 50 | | |

Complete the sentences below with vocabulary words from the list above.

1. A(n) _____ contains one or more variables.
2. A(n) _____ is a mathematical statement that says two quantities are equal.
3. In the equation $12 + t = 22$, t is a _____.

EXAMPLES

2.1 Variables and Expressions (pp. 50–53)

- Evaluate the expression to find the missing values in the table.

| n | $3n + 4$ | |
|-----|----------|------------------------------|
| 1 | 7 | $n = 1; 3 \times 1 + 4 = 7$ |
| 2 | | $n = 2; 3 \times 2 + 4 = 10$ |
| 3 | | $n = 3; 3 \times 3 + 4 = 13$ |

The missing values are 10 and 13.

- A rectangle is 3 units wide. How many square units does the rectangle cover if it is 5, 6, 7, or 8 units long?

| ℓ | w | $\ell \times w$ | |
|--------|-----|-----------------|--------------------------------|
| 5 | 3 | 15 | $5 \times 3 = 15$ square units |
| 6 | 3 | | $6 \times 3 = 18$ square units |
| 7 | 3 | | $7 \times 3 = 21$ square units |
| 8 | 3 | | $8 \times 3 = 24$ square units |

The rectangle will cover a total of 15, 18, 21, or 24 square units.

EXERCISES

Evaluate each expression to find the missing values in the tables.

| 4. | <table border="1"><thead><tr><th>y</th><th>$y - 7$</th></tr></thead><tbody><tr><td>56</td><td>8</td></tr><tr><td>49</td><td></td></tr><tr><td>42</td><td></td></tr></tbody></table> | y | $y - 7$ | 56 | 8 | 49 | | 42 | | 5. | <table border="1"><thead><tr><th>k</th><th>$k \times 4 - 6$</th></tr></thead><tbody><tr><td>2</td><td>2</td></tr><tr><td>3</td><td></td></tr><tr><td>4</td><td></td></tr></tbody></table> | k | $k \times 4 - 6$ | 2 | 2 | 3 | | 4 | |
|-----|---|-----|---------|----|---|----|--|----|--|----|---|-----|------------------|---|---|---|--|---|--|
| y | $y - 7$ | | | | | | | | | | | | | | | | | | |
| 56 | 8 | | | | | | | | | | | | | | | | | | |
| 49 | | | | | | | | | | | | | | | | | | | |
| 42 | | | | | | | | | | | | | | | | | | | |
| k | $k \times 4 - 6$ | | | | | | | | | | | | | | | | | | |
| 2 | 2 | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | | | | | | | | | | | | | | | | | | | |

6. A rectangle is 9 units long. How many square units does the rectangle cover if it is 1, 2, 3, or 4 units wide?
7. Karen buys 3 bouquets of flowers. How many flowers does she buy if each bouquet contains 10, 11, 12, or 13 flowers?
8. Ron buys 5 bags of marbles. How many marbles does he buy if each bag contains 15, 16, 17, or 18 marbles?

EXAMPLES

2-2 Translating Between Words and Math (pp. 54–57)

Write each phrase as a numerical or algebraic expression.

- 617 minus 191
 $617 - 191$
- d multiplied by 5
 $5d$ or $5 \cdot d$ or $(5)(d)$

Write two phrases for each expression.

- $a \div 5$
 - a divided by 5
 - the quotient of a and 5
- $67 + 19$
 - the sum of 67 and 19
 - 19 more than 67

EXERCISES

Write each phrase as a numerical or algebraic expression.

9. 15 plus b
10. the product of 6 and 5
11. 9 times t
12. the quotient of g and 9

Write two phrases for each expression.

13. $4z$
14. $15 + x$
15. $54 \div 6$
16. $\frac{m}{20}$
17. $3 - y$
18. $5,100 + 64$
19. $y - 3$
20. $g - 20$

2-3 Translating Between Tables and Expressions (pp. 58–61)

- Write an expression for the sequence in the table.

| | | | | | |
|---------------|---|----|----|----|-----|
| Position | 1 | 2 | 3 | 4 | n |
| Value of Term | 9 | 18 | 27 | 36 | |

To go from the position to the value of the term, multiply the position by 9. The expression is $9n$.

- Write an expression for the sequence in each table.

21.

| | | | | | |
|---------------|---|---|----|----|-----|
| Position | 1 | 2 | 3 | 4 | n |
| Value of Term | 4 | 7 | 10 | 13 | |

22.

| | | | | | |
|---------------|---|---|---|---|-----|
| Position | 1 | 2 | 3 | 4 | n |
| Value of Term | 0 | 1 | 2 | 3 | |

2-4 Equations and Their Solutions (pp. 66–69)

- Determine whether the given value of the variable is a solution.

$$f + 14 = 50 \text{ for } f = 34$$

$$f + 14 = 50$$

$$34 + 14 \stackrel{?}{=} 50 \quad \text{Substitute 34 for } f.$$

$$48 \neq 50 \quad \text{Add.}$$

34 is not a solution.

- Determine whether the given value of the variable is a solution.

23. $28 + n = 39$ for $n = 11$

24. $12t = 74$ for $t = 6$

25. $y - 53 = 27$ for $y = 80$

26. $96 \div w = 32$ for $w = 3$

Simplify each algebraic expression by combining like terms.

27. $5x + 19 + 5x - 4$ 28. $7(3x + 2) + 13x - 7$ 29. $5(a + 4) + 3(2a - 3)$ 30. $9y + 5 + 15 - 54$