

1-7 Variables and Algebraic Expressions

Evaluate each expression for the given value of the variable.

1. $6x - 14$ for $x = 5$ 16

2. $3r^2 + 12$ for $r = 4$ 4

3. $(9 + k) \cdot 8$ for $k = 1$ 80

4. $4(y \div 3)$ for $y = 15$ 20

5. $n^3 - 35$ for $n = 6$ 181

6. $4pt$ for $p = 3$ and $t = 5$ 60

7. $9 - x + t$ for $x = 3$ and $t = 10$ 16

8. $4q^2 - (m \div 3)$ for $q = 7$
and $m = 33$ 185

1-8 Translate Words into Math

Write each phrase as an algebraic expression.

9. the product of a number and 7 $7x$

10. add 25 to a number $d + 25$

11. a number decreased by 6 $t - 6$

12. the quotient of a number and 5 $a \div 5$

13. 3 times a number $3q$

14. take away 14 from a number $p - 14$

15. Sarah was 116 cm tall when she started to measure her height. She grows an average of 3 cm each month. Write an algebraic expression to show Sarah's height after h months.

$116 + 3h$

1-9 Simplifying Algebraic Expressions

Simplify each expression.

16. $6x - 7 + 3x - 7x$

17. $3y^3 + 3y^2 + y^2 - 8$

18. $5 - 6b + a + b$

$2x - 7$

$3y^3 + 4y^2 - 8$

$5 - 5b + a$

19. $2h + 10 - 5h + 7g + 3g$

20. $5r^2 - 34 + 100 + 3r^2$

21. $10 - 4h - 5h - 2h$

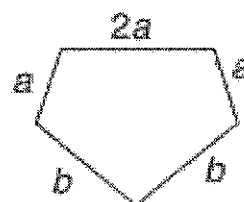
$-3h + 10 + 10g$

$8r^2 + 66$

$10 - 11h$

22. Write an expression for the perimeter of the figure. Then simplify the expression.

$a + a + 2a + b + b; 4a + 2b$



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|---|-----------------------------------|----|------------------|
| F | 1. $2x + 7 + 5x - 4 - x$ | A. | $5y + 9x + 12$ |
| D | 2. $5 + 7x + 2x - 3 + 6$ | B. | $12y + 6x + 24$ |
| U | 3. $x + y + 4x - 3x + 2y + 3y$ | C. | 15 |
| J | 4. $3x^2 + 5x - 17 + 6x + 20$ | D. | $9x + 8$ |
| H | 5. $4x + x^2 + 12 - 4 + 2x$ | E. | 4 |
| B | 6. $12y + 12x + 12 - 6x + 12$ | F. | $6x + 3$ |
| A | 7. $12y + 4 + x - 7y + 8 + 8x$ | G. | $11x + y + 7$ |
| G | 8. $5x + x^2 + 2x + 5 - 4 - x^2$ | H. | $x^2 + 6x + 8$ |
| P | 9. $5x^2 + 8x + 7x^2 + 6x$ | I. | $4x$ |
| C | 10. $12x + 6 - 8x - 4x - 3 + 12$ | J. | $3x^2 + 11x + 3$ |
| I | 11. $5x + 4 - 3x + 5 + 2x - 9$ | K. | $3x + 2$ |
| V | 12. $4x + 2y + 8 - 3 - y - x$ | L. | $3x^2$ |
| G | 13. $4x + 5 + 7x + 2y + 2 - y$ | M. | $6x$ |
| K | 14. $2y + 2x + 8 - 6 + x - 2y$ | N. | $x^2 + 3x$ |
| W | 15. $4x + 6y + 6 + 7x + y$ | O. | $6x^2 + 6y + 1$ |
| N | 16. $3x^2 + 4x - 2x^2 - 3x + 2x$ | P. | $12x^2 + 14x$ |
| X | 17. $8x + 4 - 4 - 4x + x$ | Q. | $7x + 1$ |
| S | 18. $y + 5x + 6y + 9 - 6$ | R. | x^2 |
| L | 19. $x^2 + 3 + 2x^2 + 4 - 7$ | S. | $5x + 7y + 3$ |
| O | 20. $5y + 3 + 7x^2 - 2 - x^2 + y$ | T. | 0 |
| | | U. | $2x + 6y$ |
| | | V. | $3x + y + 5$ |
| | | W. | $11x + 7y + 6$ |
| | | X. | $5x$ |