NAME _____ DATE _____ PERIOD _____

1-1 Practice

Expressions and Formulas

Evaluate each expression.

1. $3(4 - 7) - 11$

2. $4(12 - 4^2)$

3. $1 + 2 - 3(4) \div 2$

4. $12 - [20 - 2(6^2 \div 3 \times 2^2)]$

5. $20 \div (5 - 3) + 5^2(3)$

6. $(-2)^3 - (3)(8) + (5)(10)$

7. $18 - \{5 - [34 - (17 - 11)]\}$

8. $[4(5 - 3) - 2(4 - 8)] \div 16$

9. $\frac{1}{2}[6 - 4^2]$

10. $\frac{1}{4}[-5 + 5(-3)]$

11. $\frac{-8(13 - 37)}{6}$

12. $\frac{(-8)^2}{5 - 9} - (-1)^2 + 4(-9)$

Evaluate each expression if $a = \frac{3}{4}$, $b = -8$, $c = -2$, $d = 3$, and $e = \frac{1}{3}$.

13. $ab^2 - d$

14. $(c + d)b$

15. $\frac{ab}{c} + d^2$

16. $\frac{d(b - c)}{ac}$

17. $(b - de)e^2$

18. $ac^3 - b^2de$

19. $-b[a + (c - d)^2]$

20. $\frac{ac^4}{d} - \frac{c}{e^2}$

21. $9bc - \frac{1}{e}$

22. $2ab^2 - (d^3 - c)$

23. TEMPERATURE The formula $F = \frac{9}{5}C + 32$ gives the temperature in degrees Fahrenheit for a given temperature in degrees Celsius. What is the temperature in degrees Fahrenheit when the temperature is −40 degrees Celsius?

24. PHYSICS The formula $h = 120t - 16t^2$ gives the height h in feet of an object t seconds after it is shot upward from Earth's surface with an initial velocity of 120 feet per second. What will the height of the object be after 6 seconds?

25. AGRICULTURE Faith owns an organic apple orchard. From her experience the last few seasons, she has developed the formula $P = 20x - 0.01x^2 - 240$ to predict her profit P in dollars this season if her trees produce x bushels of apples. What is Faith's predicted profit this season if her orchard produces 300 bushels of apples?

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1-1 Skills Practice

Expressions and Formulas

Evaluate each expression if $a = -4$, $b = 6$, and $c = -9$.

1. $3ab - 2bc$

2. $a^3 + c^2 - 3b$

3. $2ac - 12b$

4. $b(a - c) - 2b$

5. $\frac{ac}{b} + \frac{2b}{a}$

6. $\frac{3b - 4c}{2b - (c - b)}$

7. $\frac{3ab}{c} + \frac{2c}{b}$

8. $\frac{b^2}{ac} - c$

Evaluate each expression if $r = -1$, $n = 3$, $t = 12$, $v = 0$, and $w = -\frac{1}{2}$.

9. $6r + 2n$

10. $2nt - 4rn$

11. $w(n - r)$

12. $n + 2r - 16v$

13. $(4n)^2$

14. $n^2r - wt$

15. $2(3r + w)$

16. $\frac{3v + t}{5n - t}$

17. $-w[t + (t - r)]$

18. $\frac{rv^3}{n^2}$

19. $9r^2 + (n^2 - 1)t$

20. $7n - 2v + \frac{2w}{r}$

21. TEMPERATURE The formula $K = C + 273$ gives the temperature in kelvins (K) for a given temperature in degrees Celsius. What is the temperature in kelvins when the temperature is 55 degrees Celsius?

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1-1 Expressions and Formulas

What You'll Learn

Skim the lesson. Write two things you already know about expressions and formulas.

1. _____

_____

2. _____

_____

Active Vocabulary

Review Vocabulary Identify the four *grouping symbols* used in the following expression. *(Prerequisite Skill)*

_____ ▶

_____ ▶

_____ ▶

_____ ▶

$$\left(\frac{3\sqrt{3 \cdot 6 - 2}}{5(2 - 3)}\right)^2$$

New Vocabulary Write the correct term beside each definition.

_____ ▶ letters used to represent unknown quantities

_____ ▶ expressions that contain at least one variable

_____ ▶ a mathematical sentence that expresses the relationship between certain quantities

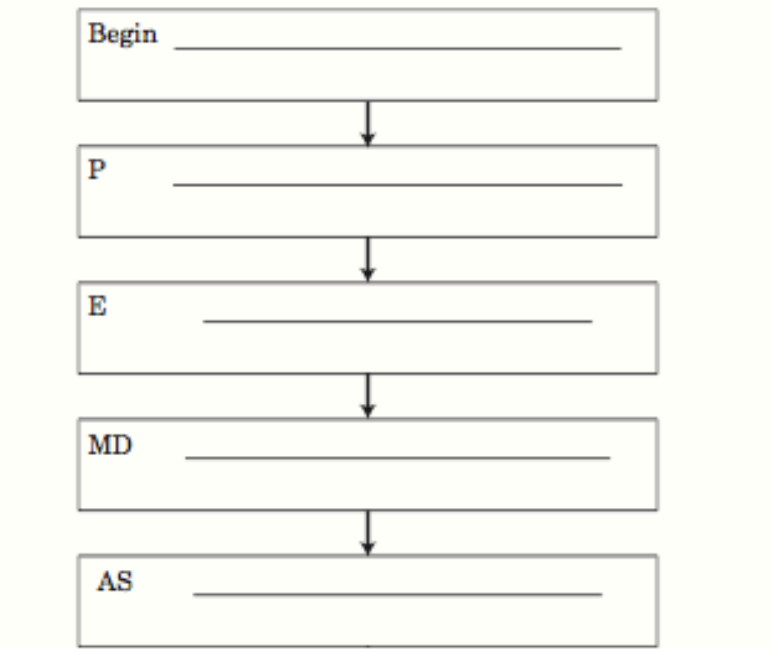
_____ ▶ a set of rules which outline the order in which calculations must be performed in a mathematical expression

Vocabulary Link Putting on socks and then shoes is an example of a real life situation in which following a prescribed *order of operations* is crucial to a successful outcome. Describe two other such situations.

_____

_____

Main Idea	Details
Order of Operations pp. 5–6	**Write a title for each step and complete the operations in order for the expression $3x - 4(y + 2)^2$ when $x = -2$ and $y = 3$.**



Formulas p. 6	**Calculate the amount of medicine to give an eight-year-old child if the adult dosage is 1500 milligrams. Use the formula $d = 0.08aD$ where d is the child's dosage, a is the child's age, and D is the adult dosage.**

Helping You Remember

Think of a phrase or sentence to help you remember the order or operations.

_____

_____