

3.1 Practice A

Identify the terms, coefficients, and constants in the expression.

1. $3 + c + e$

2. $5m + 9$

3. $3p^2 + 7$

Evaluate the expression when $c = 4$, $d = 6$, and $e = 10$.

4. $7d$

5. $c + d$

6. $15 - d$

7. $10 \cdot e$

8. $\frac{24}{c}$

9. $9 + e$

10. $16 \div c$

11. $30d$

12. $\frac{60}{d}$

Evaluate the expression when $m = 5$ and $n = 8$.

13. $4m - 7$

14. $4n - 3m$

15. $\frac{6m}{n - 3}$

16. Describe and correct the error in evaluating the expression when $m = 10$.

\times	$3m - 6 = 3 \cdot 10 - 6$ $= 3 \cdot 4$ $= 12$
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17. Twenty-five students go to lunch. Pizza costs \$3 and sandwiches cost \$2. Twelve students buy pizza. What is the total amount of money spent on sandwiches?

18. Each student in your class must do 14 homework problems. There are 23 students in the class. How many problems will your teacher have to grade?

19. A summer job pays \$5 per hour.

a. You work for 12 hours. How much do you make?

b. After working 24 hours, do you have enough money to buy an MP3 player that costs \$100?

20. You can read 52 pages per hour.

a. You read for an hour and a half. How many pages have you read?

b. You must read 130 pages for homework. Can you complete the assignment in two hours? Explain your reasoning.

3.2 Practice A

Write the phrase as an expression.

1. 6 more than 4
2. 7 less than 15
3. 3 times a number x
4. the quotient of a number m and 4
5. the product of 8 and a number p
6. twice a number x
7. a number y decreased by 10
8. 7 fewer than a number k
9. the total of a number c and 3
10. the difference of 11 and a number d
11. Describe and correct the error in writing the phrase as an expression.

\times	12 less than a number x $12 - x$
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Write two phrases for the expression.

12. $x + 8$
13. $20 - n$

Write the phrase as an expression. Then evaluate when $x = 2$ and $y = 10$.

14. twelve more than the product of 5 and a number x
15. the quotient of a number x and the sum of 3 and 7
16. 17 less than the quotient of 200 and a number y
17. 15 decreased by the product of a number x and 4
18. You eat five slices of bread. Your friend eats two slices fewer than you eat. Write an expression that describes the number of slices your friend eats.
19. Your uncle is 2 years older than 3 times your age.
 - a. You are x years old. Write an expression to describe your uncle's age.
 - b. You are 12 years old. How old is your uncle?

3.3 Practice A

Tell which property the statement illustrates.

- $3 + 5 = 5 + 3$
- $12 + 0 = 12$
- $6 \cdot 7 = 7 \cdot 6$
- $8 \cdot (10 \cdot 7) = (8 \cdot 10) \cdot 7$
- $17 \cdot 1 = 17$
- $8 + (7 + 5) = (8 + 7) + 5$

Simplify the expression. Explain each step.

- $2 + (a + 8)$
- $7(4y)$
- $(8e) \cdot 1$
- $(2x) \cdot 5$
- $(0 + c) + 12$
- $7 \cdot x \cdot 5$

Copy and complete the statement using the specified property.

- Commutative Property of Addition: $a + 7 = \underline{\quad?}$
- Commutative Property of Multiplication: $12 \cdot 5 = \underline{\quad?}$
- Associative Property of Addition: $6 + (9 + 7) = \underline{\quad?}$
- Associative Property of Multiplication: $2 \cdot (5 \cdot 7) = \underline{\quad?}$
- Describe and correct the error made in simplifying the expression.

$$54 \cdot 1 = 1$$

Multiplication Property of One

- You and your friend are selling your old CDs. Your friend sells 14 the first day and x the next day. You sell y the first day and 6 the next day. Write an expression that shows that the total number of CDs sold both days. Rewrite your answer using the Commutative Property of Addition.

3.4 Practice A

Use the Distributive Property and mental math to find the product.

1. 5×23

2. 6×25

3. $9(54)$

4. $7(59)$

Use the Distributive Property to find the product.

5. $\frac{1}{3} \times 2\frac{3}{4}$

6. $\frac{2}{5} \times 3\frac{1}{2}$

7. $\frac{3}{8} \times 5\frac{2}{3}$

Use the Distributive Property to simplify the expression.

8. $4(x + 6)$

9. $8(c - 5)$

10. $7(2y + 8)$

11. $9(e - 4)$

12. $6(4 + n)$

13. $7(3 + x + 4)$

14. Describe and correct the error in rewriting the expression.

\times $5(x + 9) = x + 45$

15. Each day you do homework for m minutes and watch TV for 30 minutes. Which expression can you use to find how many minutes you do both activities in 5 days? Explain your reasoning.

A. $5m + 30$

B. $5(m + 6)$

C. $5(m + 30)$

D. $m(5 + 30)$

16. The school office uses r reams of white paper and 3 reams of blue paper every day. Use the Distributive Property to write and simplify an expression for how much paper the school office uses in five days.

Simplify the expression.

17. $9(w + 6) + 4$

18. $5(3 + m) - 7$

19. $2m + 7 + 9m$

20. $f + 4(f - 2)$

21. $\frac{1}{2}x + \frac{3}{8}x + x$

22. $3.1(p - 2.7)$

23. Write and simplify expressions for the area and the perimeter of a rectangle. The rectangle has a width of 5 and a length of $x + 2$.