

**Algebraic Expressions**  
Study Guide

Competency: 7.4.2 Students will be able to use numbers and symbols to represent mathematical ideas.

LT#1: I can simplify an algebraic expression.

LT#5: I can apply the Distributive Property to rewrite algebraic expressions.

1.)  $4t + 3 - 4m + 2 + 3m$

$$\begin{array}{c} 4t - m + 5 \\ \text{or} \\ -m + 4t + 5 \end{array}$$

3.)  $8x - 3 - e + 9x + x - 59$

$$\begin{array}{c} 18x - e - 62 \\ \text{or} \\ -e + 18x - 62 \end{array}$$

5.)  $4(3x + 4)$

$$12x + 16$$

7.)  $-3(4r + 3)$

$$-12r - 9$$

9.)  $5(5m + 7) + 4$

$$\begin{array}{c} 25m + 35 + 4 \\ 25m + 39 \end{array}$$

11.)  $2 + 8(-3k - 4)$

$$2 - 24k - 32$$

$$-24k - 30$$

2.)  $-18r - 3 + 2r - 23 + 5p$

$$\begin{array}{c} -16r + 5p - 26 \\ \text{or} \\ 5p - 16r - 26 \end{array}$$

4.)  $-y + 9w + 4w + 12 + y - 3w$

$$10w + 12$$

6.)  $12(-3e - 2)$

$$-36e - 24$$

8.)  $-(9w - 5)$

$$-9w + 5$$

10.)  $-3(2x - 2) + 4x$

$$\begin{array}{c} -6x + 6 + 4x \\ -2x + 6 \end{array}$$

12.)  $-3(w + 5) - 9w$

$$-3w - 15 - 9w$$

$$-12w - 15$$

LT#2: I can evaluate an algebraic expression.

13.)  $3d + x$  when  $d = 8$  and  $x = 4$

$$3(8) + 4$$

$$24 + 4$$

$$28$$

14.)  $7r + 3f - 2 - 6$  when  $r = 3$  and  $f = 9$

$$7(3) + 3(9) - 2 - 6$$

$$21 + 27 - 2 - 6$$

$$48 - 2 - 6$$

$$40$$

15.)  $-9w + \frac{12}{r}$  when  $r = 4$  and  $w = 7$

$$-9(7) + \frac{12}{4}$$

$$-63 + 3$$

$$-60$$

16.)  $-8(-2c + 4) - 5h$  when  $c = -2$  and  $h = 5$

$$16c - 32 - 5h$$

$$16(-2) - 32 - 5(5)$$

$$-32 - 32 - 25$$

$$-89$$

LT#3: I can write an algebraic expression.

17.) fifteen less than a number

$$n - 15$$

18.) five times a number, then increased by 12

$$5n + 12$$

19.) triple a number, decreased by four

$$3n - 4$$

20.) the quotient of a number and twelve

$$\frac{n}{12} \text{ or } n \div 12$$

21.) Jennifer earns \$32 a day working after school at the supermarket. How much money will he earn in  $d$  days? Write an expression to represent this situation.

$$32d$$

22.) Yusha has a box of 350 granola bars. She splits these granola bars between  $s$  students. Write an expression to represent this situation.

$$350 \div s$$

23.) Jimmy's class did 12 less than half of the amount of math problems than the class did yesterday. How many math problems did Jimmy's class do today? Write an expression to represent this situation.

$$\frac{m}{2} - 12$$

24.) Jemma's dog ate half of her baseball card collection then her baby sister ripped up 5 more. How many baseball cards does Jemma have left? Write an expression to represent this situation.

$$\frac{b}{2} - 5$$

25.) Ms. Kennison spends \$11.00 each month for her Amazon Prime account and an additional \$1.29 for each movie she watches on Amazon Video. Using "m" to represent the number of movies Ms. Kennison watches, write an expression to represent the total cost for the month.

$$1.29m + 11.00$$

26.) Oceanside Bike Rental Shop charges an \$11 fixed fee plus \$6.00 an hour for renting a bike. Using "h" to represent the number of hours you rent the bike, write an expression to represent the total cost of the rental.

$$6h + 11$$

LT#4: I can describe and extend sequences.

27.) 4, 12, 20, 28...

DESCRIBE: each term increases by 8

EXTEND (3 MORE TERMS):

36, 44, 52...

28.) 8.7, 12.3, 15.9, 19.5...

DESCRIBE: each term increases by 3.6

EXTEND (3 MORE TERMS):

23.1, 26.7, 30.3

28.) 39.4, 38.9, 38.4, 37.9...

DESCRIBE:

each term decreases by 0.5

EXTEND (3 MORE TERMS):

37.4, 36.9, 36.4

LT#7: I can identify parts of an expression (terms, coefficients, constants, variables, etc.).

29.) Circle the coefficient(s) in the expression.

$$5x + 3(-6)m + 4(-2)z$$

30.) Circle the constant(s) in the expression.

$$-4x(-2) - 5y(+5) - 2z$$

31.) Circle the variable(s) in the expression.

$$6(x) + 7 + 2(a) + 4 - (z)$$

32.) Circle the term(s) in the expression.

$$6h + 32 - 6r - 8 - 3a$$

