

Name \_\_\_\_\_

Class \_\_\_\_\_

Date \_\_\_\_\_

## Writing and Evaluating Algebraic Expressions

There are some vocabulary words that are frequently used to represent arithmetic operations.

**Addition** is often suggested by: sum, increased, more than, greater than, total

**Subtraction** is often suggested by: difference, decreased by, less than, smaller than

**Multiplication** is often suggested by: product, times, twice, double

**Division** is often suggested by: quotient, divided by, shared evenly

### Examples

**Five more than  $m$ :** Five more than a number, increases a number by 5 so it would be  $m + 5$ .

**Three less than  $x$ :** Three less than a number makes the number smaller by 3 so it would be  $x - 3$ .

**Triple  $m$ :** Tripling a number is the same as multiplying the number by 3 so it would be  $3m$ .

**Five divided by  $x$ :** Division is usually written as a fraction so it would be  $\frac{5}{x}$ .

Here are some more to try. For problems 1 through 16 write an algebraic expression.

1. 5 greater than  $m$

2. Double  $s$

3. 7 less than  $t$

4. 6 more than  $y$

5. 14 divided by  $b$

6.  $m$  subtracted from  $a$

7.  $x$  divided among 5

8. The product of 7 and  $e$

9. The sum of  $d$  and  $l$

10. 6 times  $c$

11. the product of  $x$ ,  $y$ , and  $w$

12.  $h$  times 8, added to  $j$

13. 4 divided by  $p$ , increased by 7

14. Half of  $r$

15. Three times  $q$  increased by 5

16. Two less than triple  $n$

(Please turn over)

To evaluate an algebraic expression means to calculate the value of the expression when the variable is replaced by a numerical value.

### Examples

Evaluate  $2x - 5$  if  $x = 7$

Solution:  $2x - 5 \Rightarrow 2 \cdot 7 - 5 = 14 - 5 = 9$

Evaluate  $\frac{6}{x} + 9$  if  $x = 2$

Solution:  $\frac{6}{x} + 9 \Rightarrow \frac{6}{2} + 9 = 3 + 9 = 12$

For problems 17 through 24 evaluate the expression for the given values. **Be sure to show your work.**

17.  $4x - 3$  if  $x = 5$

18.  $7d$  if  $d = 10$

19.  $2xy + 1$  if  $x = 3, y = 4$

20.  $4 + 8g$  if  $g = 6$

21.  $4b + 12$  if  $b = 11$

22.  $\frac{9g}{27}$  if  $g = 3$

23.  $mw + h$  if  $m = 5, w = 8, h = 6$

24.  $\frac{y}{z} + 7$  if  $y = 4, z = 2$