

Writing Expressions and Equations

Words and phrases in problems often suggest addition, subtraction, multiplication, and division. Let's list some examples.

Addition	Subtraction	Multiplication	Division
sum/and	difference	* OF *	quotient
in all/total	left over	product	divided by
combined	subtracted	times/twice	into groups
more than	less than	each	split/share
increased	decreased	multiplied	* PER *

Writing a Phrase as an Algebraic Expression

EXAMPLE: Write the phrase five dollars more than Jennifer earned as an expression. Let d represent the number of dollars Jennifer earned.

$$d + 5$$

Let's Practice!!

3 more runs than the pirates scored

$$3 + p$$

Three feet less than the length

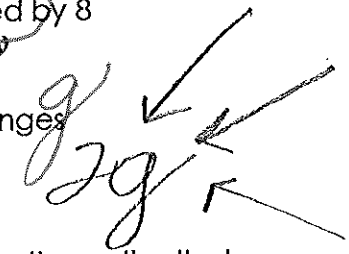
$$l - 3$$

a number increased by 8

$$n + 8$$

twice as many oranges

$$g \cdot 2$$



Writing Sentences as Algebraic Equations An equation is a sentence in mathematics that contains an equals sign.

What words represent the equals sign? equals and IS.

Let's Practice!!

Six less than a number is 20.

$$n - 6 = 20$$

Seven more than a number is 15.

$$7 + n = 15$$

One half of the regular price is \$13.

$$\frac{1}{2}n = 13 \quad \left\{ \begin{array}{l} n \\ \frac{n}{2} \end{array} \right. = 13$$

Three times Jack's age is equal to 12.

$$3j = 12$$

Ten inches less than her height is 26.

$$h - 10 = 26$$

Two points less than his score is 4.

$$s - 2 = 4$$

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Practice

Writing Expressions and Equations

*class
Practice
12/3*

Write each phrase as an algebraic expression.

- 1. the product of -5 and x
-5x
- 2. twenty increased by k
- 3. five inches more than the height
- 4. one fourth of y
- 5. Bill's weight decreased by eighteen
- 6. the quotient of 3 and a number
- 7. five less than four times as many women
- 8. \$60 more than the rent payment
- 9. 9 minutes less than Chang's time
- 10. three more pancakes than his brother ate

Write each sentence as an algebraic equation.

- 11. Five times the number of books is 95.
5n = 95
- 12. The difference of nine and a number is nine.
- 13. The sum of the average and four is -6.
- 14. Three meters longer than the pool is 8.
- 15. Twelve less a number is 40.
- 16. The product of seven and Lynn's age is 28.

For Exercises 17 and 18, write an equation that models each situation.

- 17. **FURNITURE** The width of a bookshelf is 2 feet shorter than the height. If the width is 1.5 feet, what is the height of the bookshelf?
**W = h - 2*
- 18. **SPORTS** The circumference of a basketball, the distance around, is about three times the circumference of a softball. If the circumference of the basketball is 75 centimeters, what is the circumference of a softball?

GEOMETRY For Exercises 19 and 20, describe the relationship that exists between the base and the height of each triangle.

→ use words 😊

- 19. The base is b , and the height is $b - 4$.
- 20. The height is h , and the base is $2h$.

