Section 1.R.5 Translating English Phrases and Algebraic Expressions

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Translating English Phrases into Algebraic Expressions

Key Words To Look For When Translating Phrases

Addition	Subtraction	Multiplication	Division	Exponent (Powers)

Division and subtraction are done with the values in the _____that they are given in the problem.

An **ambiguous phrase** is one whose meaning is _____

_____

Example 2 Application: Translating English Phrases

Change each phrase into its equivalent algebraic expression

English Phrase

a. the number of minutes in h hours

b. the cost of renting a truck for one day and driving x miles if the rate is \$30 per day plus \$0.25 per mile

Solution

Exercises

Write the algebraic expressions described by the English phrases. Choose your own variable.

1. seven more than a number

2. four less than a number

3. eight minus twice a number

4. the sum of four times a number and twice the same number

5. seven times a number, decreased by twice the number

6. four less than the product of three and the difference between seven and a number

Translate each pair of English phrases into algebraic expressions. Notice the differences between the algebraic expressions and the corresponding English phrases.

7. **a.** twenty less than a number

b. twenty less a number

8. **a.** five less than three times a number

b. five less three times a number

Write the algebraic expression described by the English phrases using the given variables.

9. the number of hours in d days

10. the perimeter of a rectangle if the width is w centimeters and the length is three centimeters less than twice the width

Translating Algebraic Expressions into English Phrases

Example 3 Translating Algebraic Expressions into English Phrases

Change each algebraic expression into an equivalent English phrase. In each case translate the variable as "a number."

a. $5x$

b. $2n + 8$

c. $3(a - 2)$

Solution

Exercises

Translate each algebraic expression into an equivalent English phrase. (There may be more than one correct translation.)

11. $4x$

12. $4x - 7$

13. $7(x + 1)$

14. $3(4x - 5)$

15. $\dfrac{6}{x - 1}$

16. $8 + 2(x - 1)$

Translate each pair of expressions into equivalent English phrases. (There may be more than one correct translation.) Notice the differences between the algebraic expressions and the corresponding English phrases.

17. $3x + 7; \quad 3(x + 7)$

18. $7x - 3; \quad 7(x - 3)$

Translating Equations into Word Problems

Example 4 Translating Equations into Word Problems

For each equation, make up your own word problem that might use the equation in its solution. Remember that the variable can be translated into something like "a number" or "some number."

a. $5x + 10 = -10$

b. $3y + 25 = 2(y + 6)$

Solution

Exercises

For each equation, make up your own word problem that might use the equation in its solution.

19. $9 + 3x = 21$

20. $\frac{t}{2} + 4 = t - 1$