Lesson 19: Rearranging Formulas

Classwork

Exercise 1

Solve each equation for *.*  For part (c), remember a variable symbol, like , , and represents a number.

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| --- | --- | --- |
|  |  |  |

Exercise 2

Compare your work in parts (a) through (c) above. Did you have to do anything differently to solve for in part (c)?

Exercise 3

Solve the equation for . The variable symbols , , and represent numbers.

**Example 1: Rearranging Familiar Formulas**

The area of a rectangle is in2. The formula for area is .

* If the width is inches, what is the length?
* If the widthis inches, what is the length?
* Rearrange the area formula to solve for .
* Verify that the area formula, solved for, will give the same results foras having solved for in the original area formula.

Exercise 4

Solve each problem two ways. First, substitute the given values and solve for the given variable. Then, solve for the given variable and substitute the given values.

* 1. The perimeter formula for a rectangle is , where represents the perimeter, represents the length, and represents the width. Calculate when and .
	2. The area formula for a triangle is , where represents the area, represents the length of the base, and represents the height. Calculate when and .

Exercise 5

Rearrange each formula to solve for the specified variable. Assume no variable is equal to .

* 1. Given ,
		1. Solve for .
		2. Solve for .
	2. Given ,
		1. Solve for .

* + 1. Solve for .

**Example 2: Comparing Equations with One Variable to Those With More Than One Variable**

|  |  |
| --- | --- |
| **Equation Containing More Than One Variable** | **Related Equation** |
| Solve for . | Solve for . |
| Solve for . | Solve for . |

Lesson Summary

The properties and reasoning used to solve equations apply regardless of how many variables appear in an equation or formula. Rearranging formulas to solve for a specific variable can be useful when solving applied problems.

Problem Set

For Problems 1–8, solve for .

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|  |  |  |  |
| 1. Solve for .
 | 1. Solve for .
 | 1. Solve for .
 | 1. Solve for .
 |
| 1. Solve for .
 | 1. Solve for .
 | 1. Solve for .
 | 1. Solve for
 |

1. The science teacher wrote three equations on a board that relate velocity, distance traveled, , and the time to travel the distance on the board.

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 Would you need to memorize all three equations or could you just memorize one? Explain your reasoning.