

Equations of Proportional Relationships

To express a proportional relationship using an equation, you must first calculate the _____ of _____ (that constant ratio: y/x we look for to determine if quantities are proportional).

The equation of a proportional relationship is always in the form: $y = kx$, where k is the _____ of _____.

When given a word problem, how do you determine the numerator and denominator of your constant of proportionality?

Examples:

1. Determine if the relationship shown in the table is proportional, if it is, write an equation representing the relationship:

A.

hours	miles
1	65
2	130
3	195

B.

Pounds	Cost (\$)
3	2.25
6	4.50
9	6.75

C.

hours	miles
$\frac{1}{2}$	3
$\frac{3}{4}$	$4\frac{1}{2}$
$1\frac{1}{2}$	9

2. Two pounds of cashews cost \$5, 3 pounds of cashews cost \$7.50, and 8 pounds of cashews cost \$20. Show that the relationship between the number of pounds of cashews and the cost is a proportional relationship. Then write an equation that you could use to find the cost of 10 pounds of cashews.

3. A cake recipe requires $3\frac{1}{4}$ cups of flour for 13 servings and $4\frac{1}{2}$ cups of flour for 18 servings. Write an equation showing the relationship between the amount of flour needed per serving of cake, and then determine how much flour is required to make a cake that serves 28.

4. Jeremy is saving money from a tutoring job. After the first three weeks, he saved \$135. Assume the situation is proportional. Write an equation relating the amount saved to the number of weeks worked. At this rate, how much will Jeremy save after 8 weeks?