Proportional Relationships

Notes	Video Links & Practice Space
Vocabulary: **Dependent Variable**: The _____ of a function, typically the ___ value **Independent Variable**: The _____ of a function, typically the ____ value. **Proportion**: An equation where two _____are equal to each other. **Proportional Relationship:** A collection of pairs of numbers that are in _____ ratios.	Vocab (0:54)
Proportional Relationships **Remember:** A proportion shows that two ratios are _____. Usually one of the variables "depends" on the other - this is the _____ variable. **Example:** If a recipe says for every 1 cup of mix, add 2 cups of milk: the milk is the _____ variable because it _____ on the mix. The mix is the _____ variable. In a fraction, the dependent variable will be the _____ and the independent variable will be the _____. Proportional relationships can be represented by a _____, _____, or _____.	Proportional Relationships (1:01)

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Written Description

Example 1: For every 1 cup of mix, add 2 cups of milk.

Written Description: _____

_____

_____

Example 2: Wristbands at a fair are $20 each.

Written Description: _____

_____

_____

Written Description (1:11)

Table

Example 1: For every 1 cup of mix, add 2 cups of milk.

Cups Mix	1	2	3
Cups Milk			

Example 2: Wristbands at a fair are $20 each.

Wristbands	1	2	3
Cost			

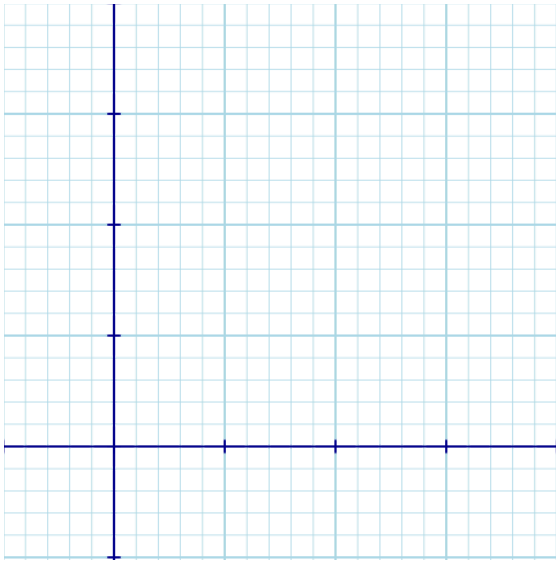
Table (2:33)

Graph

Independent variable: _____

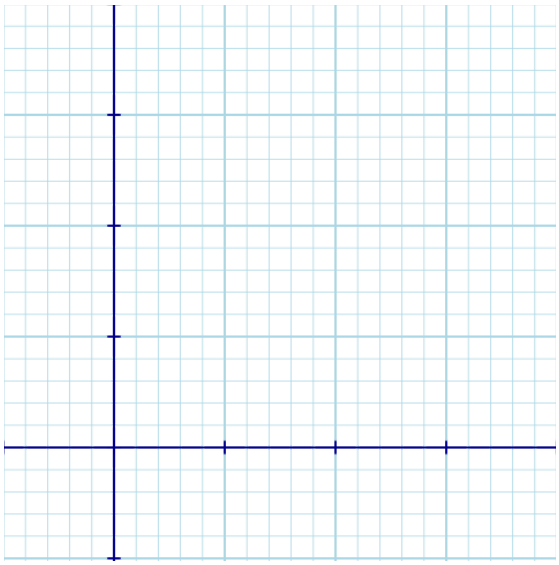
Dependent variable: _____

Example 1: For every 1 cup of mix, add 2 cups of milk.



Graph (4:51)

Example 2: Wristbands at a fair are $20 each.

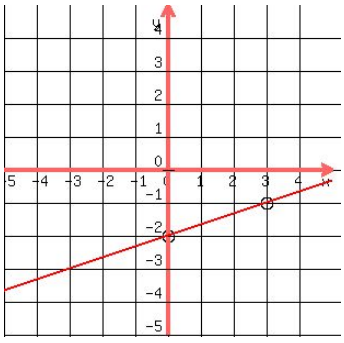


Is The Graph Proportional?

To be proportional, the graph must:

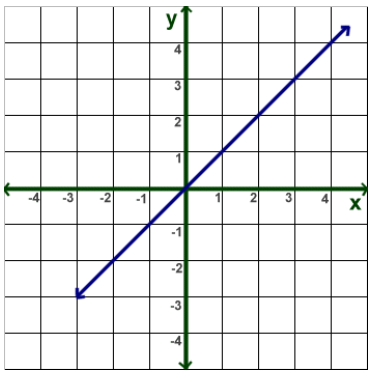
1. Be a _____
2. Intersect at _____

Example 1:



Is the Graph Proportional? (1:24)

Example 2:



Is The Table Proportional?

To be proportional, the table must: have _____ equivalent ratios

Important:

1. First, write and _____ all ratios in the table.
2. A table with (0,0) does _____ always mean it is proportional.
3. If two ratios are equivalent, you still must verify to ensure _____ ratios are equivalent.

Example 1:

x	0	2	3	5
y	0	2	3	7

Is the Table Proportional? (2:34)

Example 2:

x	0	2	3	4
y	0	4	6	8

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Creating a Table from a Graph

Step 1: Choose at least _____ points from the line and write the _____ pairs

Step 2: Create a _____ using the _____ pairs from the graph

Remember, the x coordinate will be the _____ value and the y coordinate will be the _____ value.

Example: Determine if the graph to the right shows a proportional relationship.

Step 1: _____ _____

Step 2:

x		
y		

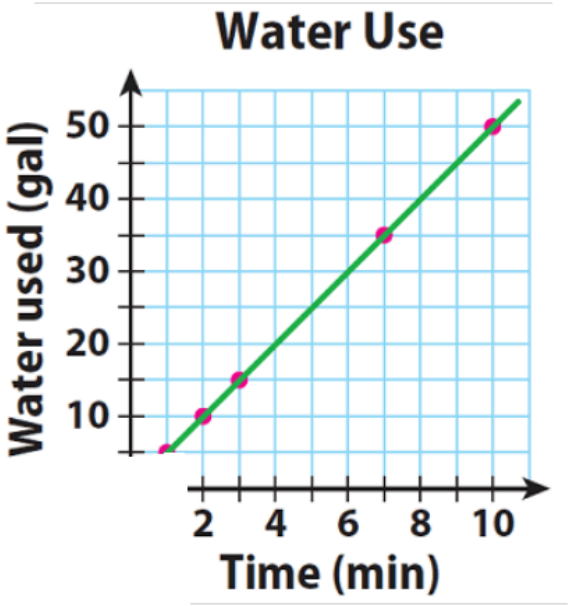
Write & Simplify Ratios:

$\frac{y}{x}$ = — =

$\frac{y}{x}$ = — =

Is it proportional?

Creating a Table from a Graph (2:33)



Proportional Relationships in the Real World

First: Identify _____ and _____ variables

Then: Determine if the variables could be _____ at the _____ time

Last: Determine _____

Example: You are mowing lawns as a summer gig. After mowing 3 lawns you have $90, and after mowing 7 lawns you have $210. Is there a proportional relationship between money earned and number of lawns mowed?

Independent: _____

Dependent: _____

Proportional Relationships (2:21)

Can they be zero? _____

_____ = — =

_____ = — =

Are they proportional? _____

Translate Written Description to a Table

Step 1: Determine the _____ and _____ variables

Step 2: Create a _____ with the independent variable labeled _____ and the dependent variable labeled _____

Example: You are playing a video game. Every time you walk 10 feet, you earn 7 coins. After walking 35 feet, you earn 24.5 coins and after walking 60 feet, you earn 42 coins. Use a table to determine if the relationship between the distance and coins earned is proportional.

Translate Written Description (3:05)

_____ = — =

_____ = — =

Independent: _____

Dependent: _____

_____ = — =

Are they proportional? _____

Create Written Description from Graph or Table

Step 1: Choose _____ on the graph or table that _____ the proportional relationship

Step 2: Write a _____ relationship statement using _____ vocabulary

Important! _____ all values on the table or graph will be _____ in the description. You do _____ need to include all values. However, you want to make sure to include _____ values so that someone using your written description could _____ that the relationship is _____.

Pro Tip! Use a minimum of three values.

Practice

Example 1: The graph to the right shows the relationship between the number of cookies made and the cups of flour needed for the recipe. Use the information on the graph to write a written description.

Choose values: _____

Written Description: _____

_____

_____

_____

Create Written Description

Practice (3:07)



_____

Example 2: The table to the right shows the relationship between number of trees and number of apples picked from the tree. Use the information in the table to write a written description.

Choose values: _____

Written Description: _____

_____

_____

_____

_____

# of Trees	# of Apples
2	26
3	39
6	78
10	130
12	146