If copied 2-sided, flip on short edge

Fold in half

Glue this side down

jW
illustrations

Independent and Dependent Quantities

Your goal for today is to identify **independent** and **dependent** quantities from graphs and tables.

**Dependent quantity**: a quantity whose value _____ on another quantity

Independent quantity: a quantity whose value _____ the value of another quantity.

How can you identify dependent and independent quantities from a table or graph?

The Question to Ask is . . . Does a change in the value of ___ depend on a change in the value of ___?

When looking at a **graph**,

- Independent quantities _____

- Dependent quantities _____
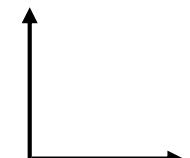
When looking at a **table**,

- Independent quantities _____

- Dependent quantities _____

Example 1: Grace makes $15.00 for each hour she works as a game designer. Use the table and graph to show how much she makes after working certain lengths of time.

The independent quantity (x-value) is _____

The dependent quantity (y-value) is _____

Equation		
Complete the **table**		**Graph** the Situation

x	15 · x	y	Ordered pair
2			
4			
8			
10			
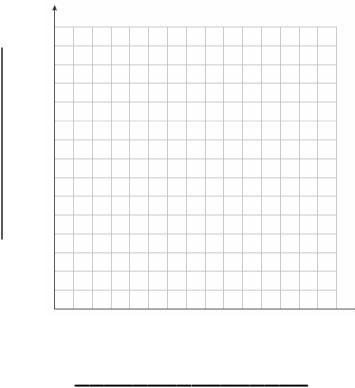
_____

Example 2: Mya practice her guitar 20 minutes every day. This can be represented by the equation t=20d.

What is the independent quantity? _____

What is the dependent quantity? _____

How many minutes would she have practiced after 7 days?

If she has practiced for 4 hours, how many days have elapsed?

Example 3: Identify the independent and dependent quantities from the graph.
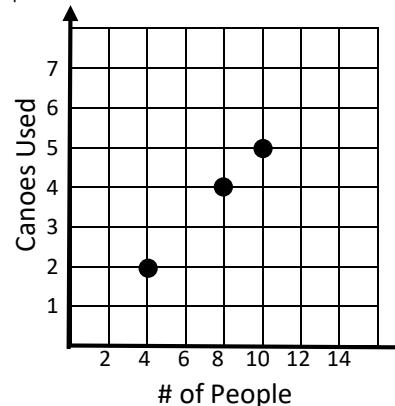
Independent Quantity:

Independent Values:

Dependent Quantity:

Dependent Values:

Create a table from the information in the graph.

Write an equation to describe the situation.

Example 4: Which situation best describes the relationship between all the values of x and y in the table?

x	y
0	50
2	52
4	54
6	56

A. Giselle saved $50 every two months.

B. Kim has fifty times the number of pens that John has.

C. Carter exercised fifty minutes one week and two more every week after that.

D. Abby had fifty squishes and then bought two more every two weeks.

Independent and Dependent Quantities

Your goal for today is to identify **independent** and **dependent** quantities from graphs and tables.

**Dependent quantity**: a quantity whose value <u>depends</u> on another quantity

Independent quantity: a quantity whose value <u>changes</u> the value of another quantity.

How can you identify dependent and independent quantities from a table or graph?

The Question to Ask is . . . Does a change in the value of __ depend on a change in the value of __?

When looking at a **graph**,

- Independent quantities <u>x-values</u>
- Dependent quantities <u>y-values</u>

When looking at a **table**,

- Independent quantities <u>input</u>
- Dependent quantities <u>output</u>
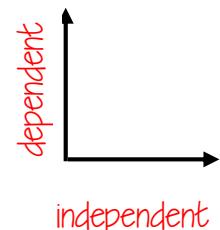
Example 1: Grace makes $15.00 for each hour she works as a game designer. Use the table and graph to show how much she makes after working certain lengths of time.

The independent quantity (x-value) is <u>the number of hours she works</u>

The dependent quantity (y-value) is <u>money she will make</u>

Equation $y = 15x$

Complete the **table**				Graph the Situation

Complete the table

x	15 · x	y	Ordered pair
2	15 · 2	30	(2,30)
4	15 · 4	60	(4,60)
8	15 · 8	120	(8,120)
10	15 · 10	150	(10,150)

Graph the Situation
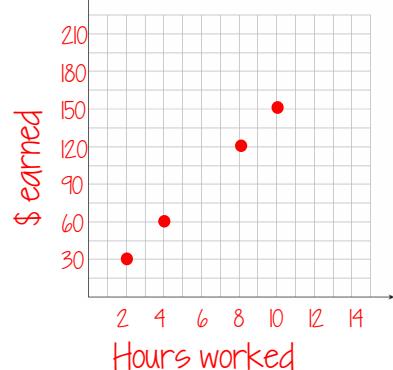
$ earned vs Hours worked

Example 2: Mya practice her guitar 20 minutes every day. This can be represented by the equation t=20d.

What is the independent quantity? <u>The # of days she practiced</u>

What is the dependent quantity? <u>The total time she practiced</u>

How many minutes would she have practiced after 7 days?
$t = 20d \rightarrow t = 20 \cdot 14 \longrightarrow t = 280$ minutes

If she has practiced for 4 hours, how many days have elapsed?
Since 4 hours = 240 minutes, plug in 240 minutes as t.
$t = 20d \rightarrow 240 = 20 \cdot d \longrightarrow d = 12$ days

Example 3: Identify the independent and dependent quantities from the graph.
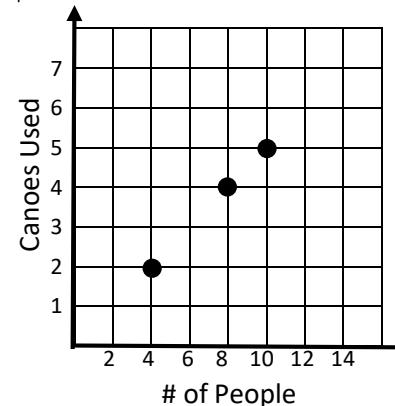
Independent Quantity: # of people

Independent Values: 4, 8, 10

Dependent Quantity: canoes used

Dependent Values: 2, 4, 5

Create a table from the information in the graph.

x	4	8	10
y	2	4	5

Write an equation to describe the situation.

$$y = \frac{1}{2}x \text{ or } y = \frac{x}{2}$$

Example 4: Which situation best describes the relationship between all the values of x and y in the table?

x	y
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4	54
6	56

A. Giselle saved $50 every two months.

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