Lesson 10: Direct Variation vs. Partial Variation

Warm-Up

What's the Charge?

The table below represents the linear relationship between cost and repair time at an appliance store.

Repair time, t (h)	Cost, C ($)
3	205
6	385
8	505

Determine the initial value of this relationship. Show your work.

Initial value: _____

DIRECT VARIATION:
This happens when a straight line has a y-intercept of 0 (the line goes through the origin).

PARTIAL VARIATION:
This happens when a straight line has a y-intercept that is **not** 0 (the line does not go through the origin).

Is this relationship a direct or a partial variation?

Circle one: Direct variation Partial variation

Justify your answer.

DIRECT AND PARTIAL VARIATION

DIRECT VARIATION:

This happens when a straight line has a y-intercept of 0 (the line goes through the origin).

PARTIAL VARIATION:

This happens when a straight line has a y-intercept that is **not** 0 (the line does not go through the origin).

EXAMPLE 1:

Look at Example 1 on page 1. Label each situation below as direct variation or partial variation.

You get a job at Vincenzo's but pay $40 for a uniform before starting the job and make $12 per hour.
y-intercept: _____
Variation: _____

You decide to get a part-time job working at Vincenzo's in Waterloo. The store pays $10 per hour as a starting wage.
y-intercept: _____
Variation: _____

You get a job at Vincenzo's and are given a $20 bonus for getting the job and make $10 per hour.
y-intercept: _____
Variation: _____

EXAMPLE 2:

Nick has $900 in his bank account. He takes $100 out of his account every week.

a) Write an equation to represent this situation.

b) Is this an example of direct or partial variation? Explain how you know.

c) How much is left in Nick's account after 6 weeks?

EXAMPLE 3:

An author earns a royalty of $0.50 for each book sold.

a) Write an equation to represent this situation.

b) Is this an example of direct or partial variation? Explain how you know.

c) How many books need to be sold for the author to earn $200,000?