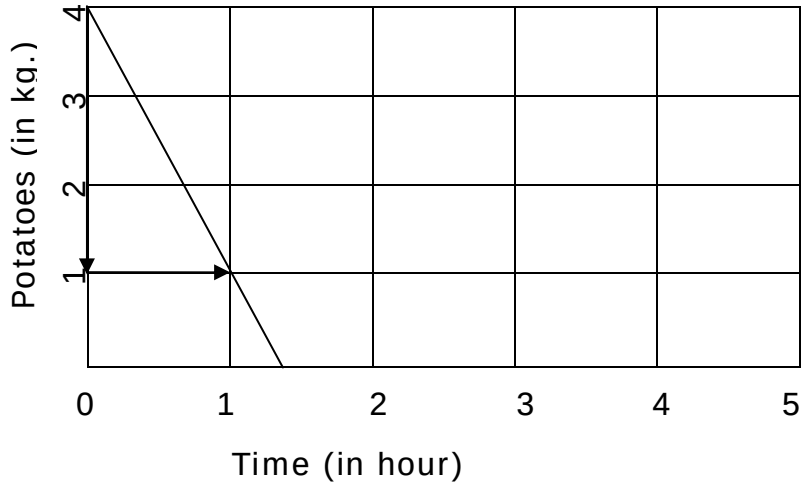
Name _____ Date _____

Determining and Predicting the Rate of Change - Guided Lesson Explanation

Explanation#1

The formula of slope is



Slope = $\frac{Vertical\ change}{Horizontal\ change} = \frac{-3}{1}$ = -3

b) What does this slope tell us?

Since the slope is -3, it tells us that Mathew is peeling potatoes at a rate of 3 kilograms per hour. The negative value of the slope tells us that the amount of potatoes is decreasing. It also tells us that he doesn't have enough potatoes to keep peeling for more than 1/3 of an hour (20 minutes). So it will take him 1 hour 20 minutes to peel all the potatoes.

Explanation#2

To find the average rate of change put the interval values in equation and solve them. Time to plug our numbers into the equation:

$y = y^2 - 4$

$f(7) = (7)^2 - 4 = 49 - 4 = 45$ Solve with x=7

$f(8) = (8)^2 - 4 = 64 - 4 = 60$ Solve with x=8

The average rate of change over the interval (2, 3)

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$= \frac{f(8) - f(7)}{8-7}$

$= \frac{60 - 45}{8-7}$

$= 15$

So, the answer is 15.

Explanation # 3

The formula for slope is

Slope $= \frac{y_2 - y_1}{x_2 - x_1}$

Slope $= \frac{-7 - 3}{2 - (-7)}$

Slope $= \frac{-10}{9}$

So, the answer is $\frac{-10}{9}$.