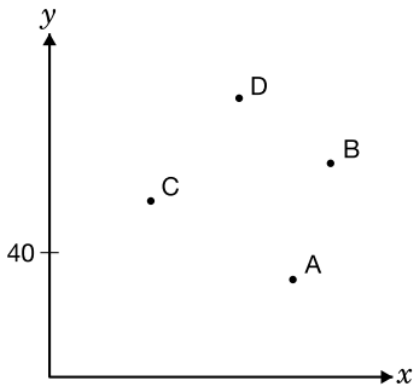
Name: _____

Modelling with Graphs and Basic Linear Relations

Answer each open response question as the instructions specify. Be sure to "justify", "show your work", etc… Please use a ruler for questions requiring graphs. When your work is complete, please hand it in.

Lineup

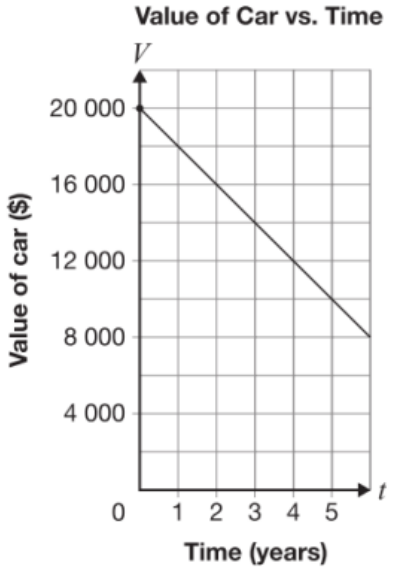
The line $y = \frac{1}{5}x + 50$ passes through only one pair of points below.



Which pair of points could the line pass through? Justify your response.

Hot New Wheels

Cybelle and Peter each buy a car. The graph below represents the value of Cybelle's car over time.



Peter's car costs less than Cybelle's. The value of both cars changes at the same rate.

Determine a possible equation to represent the relationship between the value of Peter's car, V, in dollars, and time, t, in years.

$V =$ _____

Justify your equation.

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: _____

Is this relationship a direct or a partial variation?

Circle one: Direct variation Partial variation

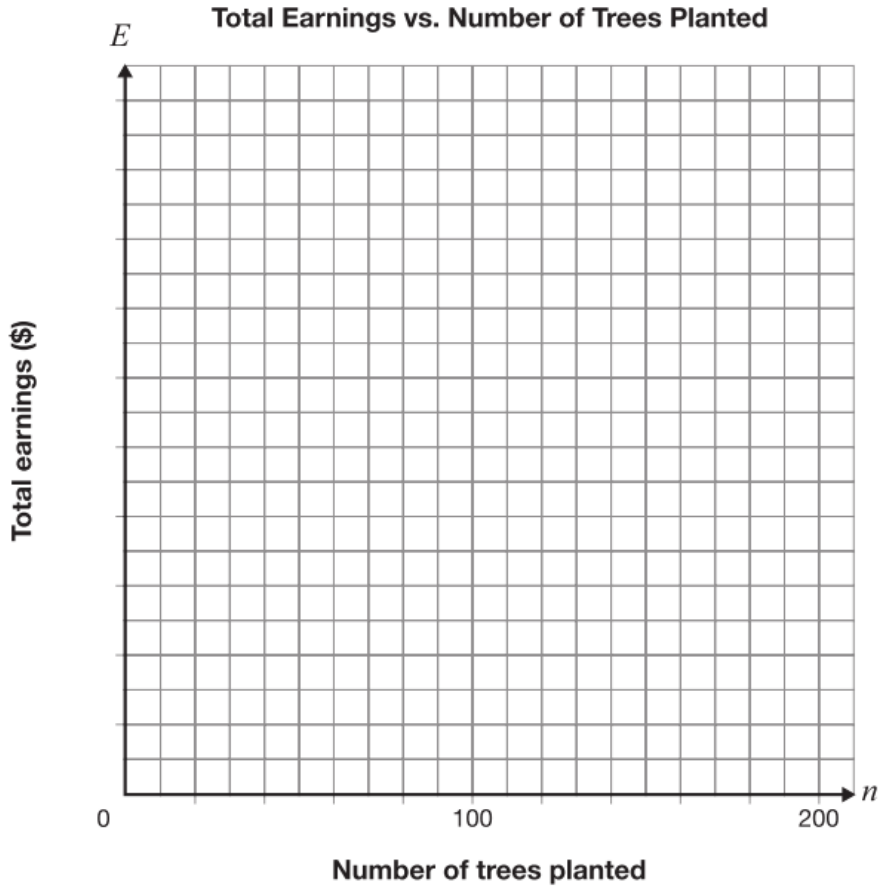
Justify your answer.

Planting More Trees

Rachel plants trees in Northern Ontario. She is paid $55 a day plus 15¢ for each tree she plants.

On the grid provided, draw the graph of the relationship between Rachel's total earnings for a single day, *E,* in dollars, and the number of trees she plants that day, *n.*

Include a scale on the vertical axis.

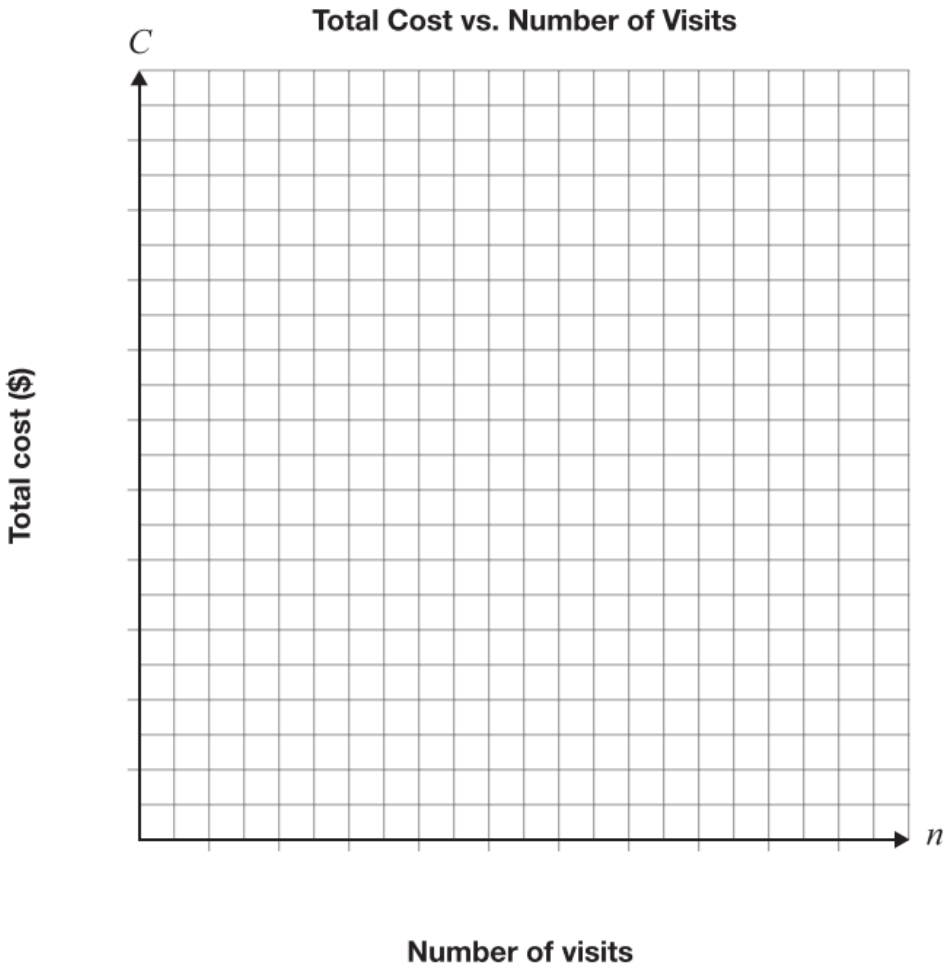


Write an equation to represent the relationship between Rachel's earnings for a single day, *E,* and the number of trees she plants, *n.*

Which Is Which?

A relationship between the total cost to use a gym for a month, C, and the number of visits, n, is a partial variation. The total cost for 10 visits during one month is $50.

Draw a graph that could represent this relationship. Label each axis with an appropriate scale.



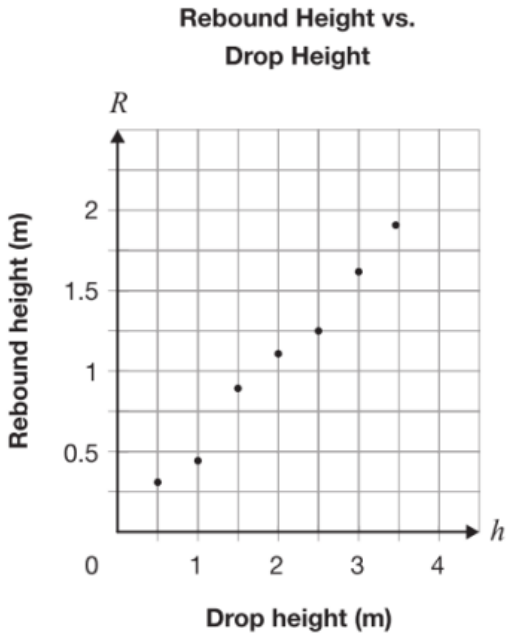
Determine the equation for your graph.

$C =$ _____

Explain how you know your equation represents a partial variation.

Follow the Bouncing Ball

This scatter plot shows the relationship between the rebound height of a ball and the height from which the ball is dropped.



Draw a line of best fit for the data on the grid above.

Determine an equation for your line of best fit.

Show your work.