Lesson 5 Assignment

Applications

Work slowly and carefully. If you are having difficulty, go back and review the appropriate *Lesson*.

For full marks, show all calculations, steps, and/or explain your answers.

Total marks: 30

1. Hens tend to lay fewer eggs as they get older.

(2) a. State the dependent variable and the independent variable. Describe the relationship between the age of a hen and the number of eggs that are laid.

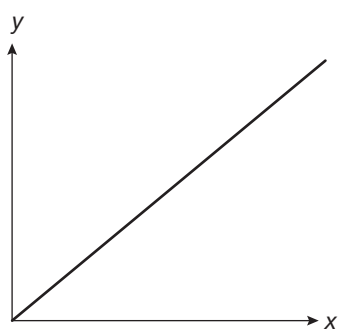
Dependent variable: _____

Independent variable: _____

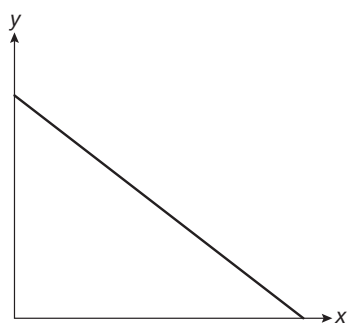
Relationship: _____

(1) b. Circle the graph that best displays the trend of the data.

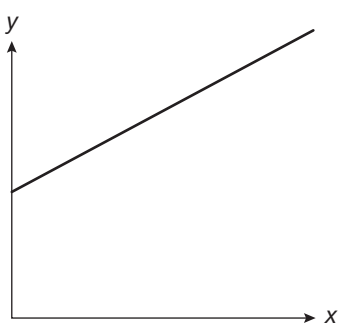
Graph i



Graph ii



Graph iii



2. Sarah owns a company that paints street signs. The time it takes to set up for painting is $200\ \text{min}$. The time needed to paint each sign is $25\ \text{min}$.

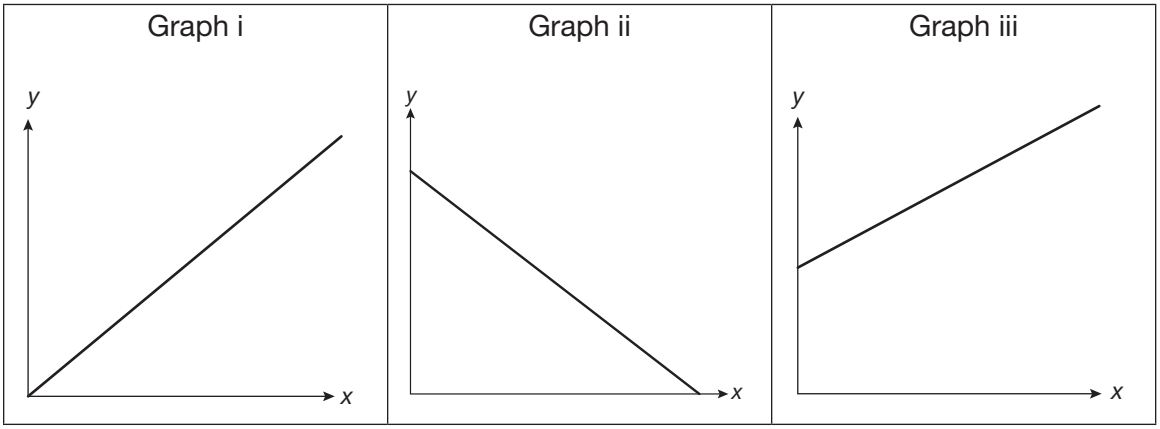
(2) a. State the dependent variable and the independent variable. Describe the relationship between the number of signs and the total amount of time it takes to paint them.

Dependent variable: _____

Independent variable: _____

Relationship: _____

(1) b. Circle the graph that best displays the trend of the data.

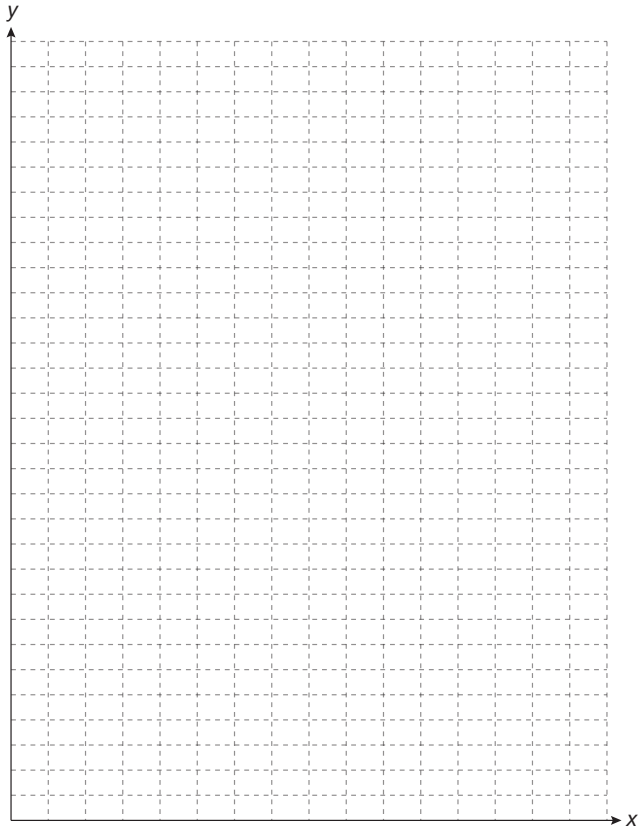


3. Eric drives non-stop from the Calgary airport to the Edmonton airport, a distance of $260\ \text{km}$. After 1.8 hours, Eric's friend Wanda, who is also travelling in the car, has recorded their distance travelled as $185\ \text{km}$.

(1) a. State the dependent variable and the independent variable.

(4)

b. Plot the points $(0, 0)$ and $(1.8, 185)$. Should the points be connected? Explain.



(2)

c. The average speed of a car is calculated using the following formula:

$$\begin{aligned}\text{speed} &= \frac{\text{rise}}{\text{run}} \\ &= \frac{\text{change in distance}}{\text{change in time}} \\ &= \frac{y_2 - y_1}{x_2 - x_1}\end{aligned}$$

Use the formula to calculate the slope of the line. Round the slope to the nearest whole number.

(1) d. Determine the equation of the line.

(1) e. How far did Eric and Wanda travel after 1.2 hours? Round to the nearest km.

(1) f. Use the graph in *part b* to estimate how long it will take Eric to travel to Edmonton airport, a distance of $260\ \text{km}$.

4. Hockey jerseys are priced at a fixed value plus a certain cost per letter. The equation that represents the cost of a jersey is $y = 1.5x + 20$, where x is the number of letters used and y is the cost of the jersey.

(1) a. Does the equation represent direct variation or partial variation?

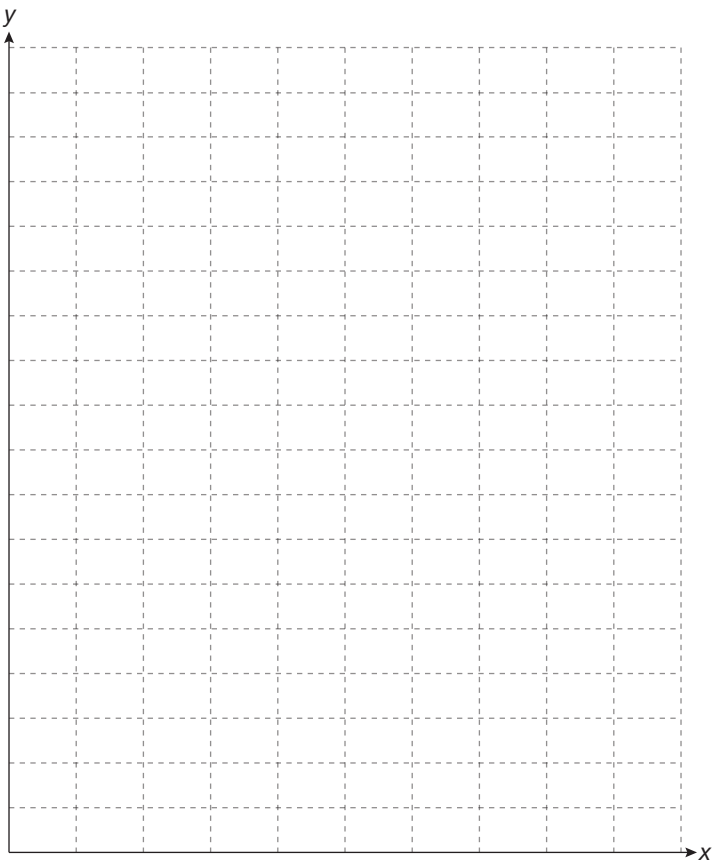
(1) b. What does the slope of the line represent in this scenario?

(1) c. What does the y-intercept represent in this scenario?

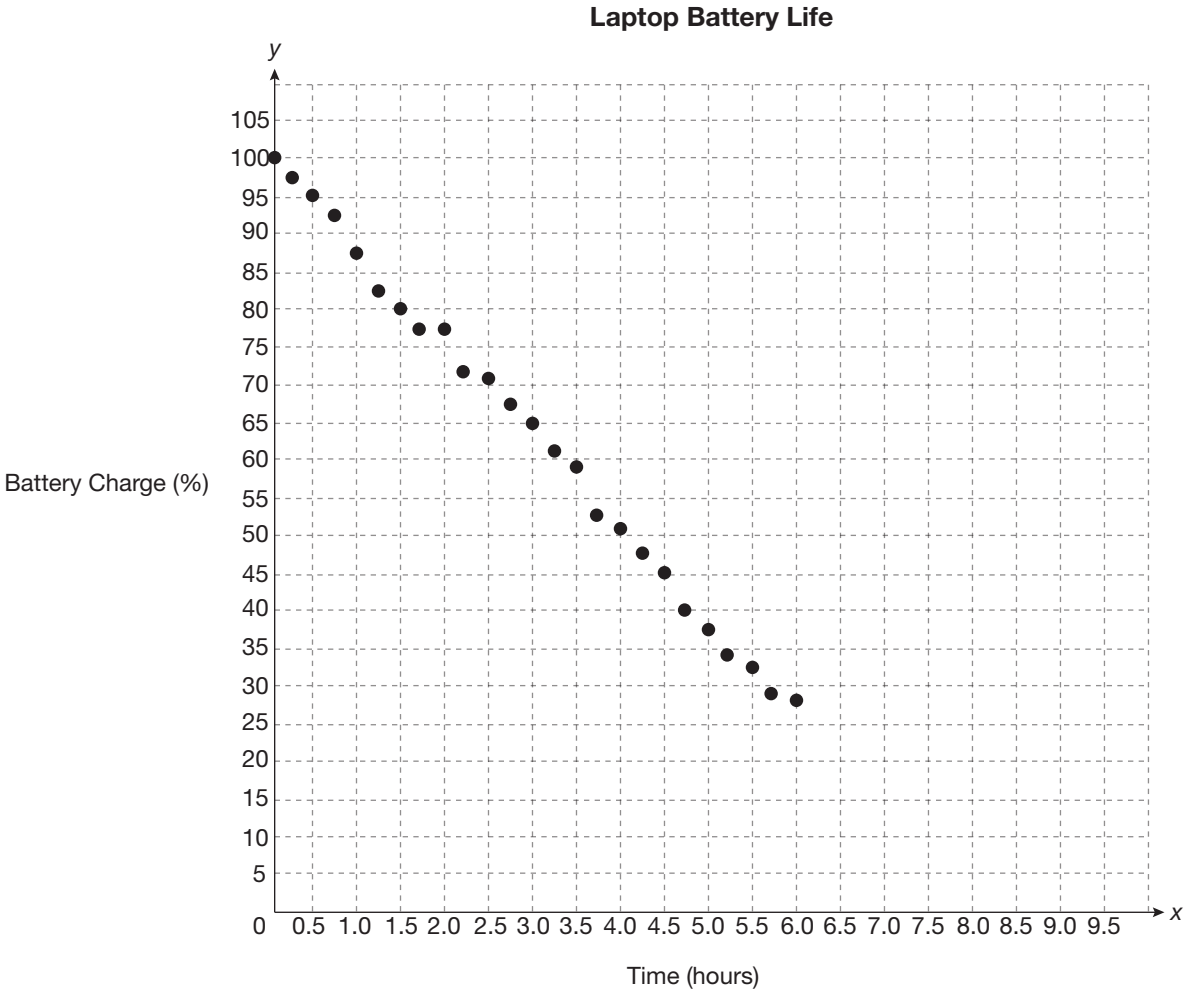
(1) d. How much will a hockey jersey cost if six letters are written on the back of the jersey?

(2) e. Set up a table of values for the cost of a hockey jersey. Include the values $0, 2, 4,$ and 6 to represent the number of letters on the jersey. Use the equation $y = 1.5x + 20$ to determine the cost.

4 f. Plot the points from the table of values. Should the points be connected? Explain.



5. Zena records her laptop's battery life every 15 minutes. The graph of the data is shown below.



(2) a. Does the scatterplot display positive correlation, negative correlation, or no correlation? Explain.

(1) b. Draw the line of best fit on the graph from *part a*.

(1) c. Use the line of best fit to estimate how long it will take Zena's battery to reach a charge of 0%.