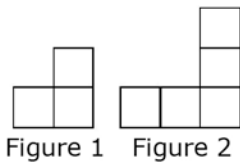


6.1 Representing Patterns

1. a) Describe the following pattern 7, 4, 1, -2...
- b) Find an equation that represents the pattern and use it to find the 25th number.

2. a) Draw the next two figures in this series.



- b) Create a table of values comparing the number of squares and the figure number.

Figure	1	2	3	4
Squares				

- c) Describe the pattern:

- d) Write the equation that represents this pattern:

- e) How many squares are in Figure 20?

- f) Which figure number has 69 squares?

3. A number pattern *starts at 1.5*. Each number after that is *four more* than the number before.

Term	1	2	3	4	5
Value	1.5				

- a) Make a table of values for the first five terms.

- b) Develop an equation that can be used to determine the value of each term in the pattern:

- c) What is the value of the 95th term?

- d) Which term has a value of 237.5?

4. What linear equation models the relationship between the values in each table?

a)

<i>n</i>	0	1	2	3
<i>C</i>	11	16	21	26

b)

<i>x</i>	1	2	3	4
<i>y</i>	-2.1	-0.6	0.9	2.4

c)

<i>t</i>	0	1	2	3
<i>d</i>	20	15	10	5

d)

<i>c</i>	1	2	3	4
<i>r</i>	$\frac{6}{5}$	$\frac{7}{5}$	$\frac{8}{5}$	$\frac{9}{5}$

5. On top of the \$45 monthly fee, Sam’s cell phone plan charges \$0.15 for every text message he sends or receives.

- a) Develop an equation to calculate the monthly bill.
- b) Complete a table of values comparing the number of text messages and the monthly cost.

<i>Messages</i>	<i>1</i>	2	3	4	5
<i>Cost</i>					

- c) What would Sam’s bill be if there were 20 text messages in a month?
- d) If Sam budgets \$80 a month for his cell phone, how many text messages can he send or receive each month? Explain.

6. A smaller tanker is driving at a speed of 30 km/h. When it puts on the breaks it takes a while to slow down. The equation $s = -3t + 30$, where s is speed in km/h and t is time in min, models stopping the small tanker.

- a) What would be the speed of the tanker be at 7 min after the breaks are put on?
- b) How much time would it take the tanker to stop?

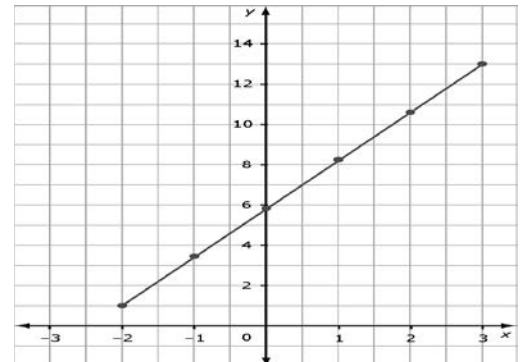
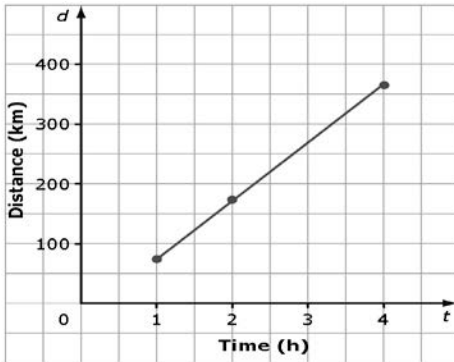
6.2 Interpreting Graphs

Warm up:

1. For the graph below (left)

a) What is the approximate value of d when $t = 3$? _____ Explain the method you used.

b) What is the approximate value of t when $d = 300$? _____



2. For the graph above (right)

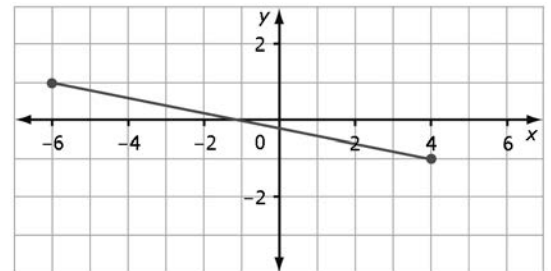
a) What is the approximate value of y when $x = -1.5$? _____

b) What is the approximate value of x when $y = 10$? _____

3. For the graph below

a) What is the approximate value of y when $x = 3.5$? _____

b) What is the approximate value of x when $y = 0.5$? _____



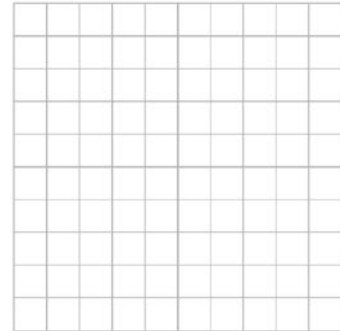
Literacy Link: On the graph, the line joining the points shows that the data are *continuous*. This means that it is reasonable to have values between given data points

- *Interpolate* means estimating a value between two given values. *Interpolation* should be used only when it makes sense to have values between given values. For example, 5.4 people do not make sense.
- *Extrapolate* means estimating a value beyond a given set of values. *Extrapolation* should be used only when it makes sense to have values beyond given values.

4. In the deli section of a grocery store, Greek salad costs \$1.50 per 100 g. Plot the data on a graph.

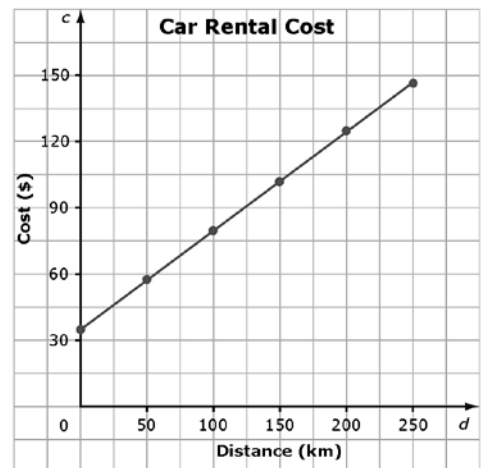
Mass of Greek Salad, m (g)	100	200	300	400	500
Cost, C (\$)	1.50	3.00	4.50	6.00	7.50

- a) From the graph, determine the cost of 800 g of Greek salad. _____



- b) From the graph, determine how much salad you get for \$10.50. _____

5. A car rental company charges a flat rate of \$35.00 plus \$0.45 per kilometre for renting a car. The graph shows the cost of renting a car based on the number of kilometres driven.



- a) Is it reasonable to *interpolate* or *extrapolate* values on this graph? YES NO Explain.

- b) What is the rental cost after driving 300 km? _____

- c) Approximately how many kilometres can be driven for a rental cost of \$115? _____