

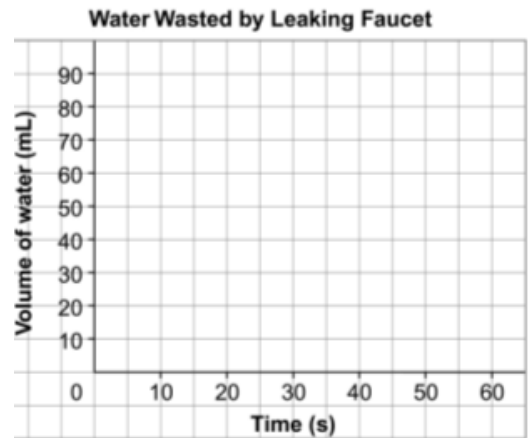
4.4 Direct and Partial Variation

Direct Variation: A straight line that passes through the origin (0,0).

Investigate: [Leaky Faucets](#)

A faucet leaks.
The volume of water wasted and the times when
the volume was measured are shown.

Time (s)	Volume of water wasted (mL)	First differences (mL)
0	0	___ - ___ = ___
10	15	___ - ___ = ___
20	30	___ - ___ = ___
30	45	___ - ___ = ___
40	60	___ - ___ = ___
50	75	___ - ___ = ___



a) What is the rate of change?

b) What does the rate of change represent?

c) Write an equation to represent the relation.

d) How much water do you lose if 100 seconds go by?

Partial Variation: A straight line that does NOT pass through the origin (0,0).

Investigation: Car Costs

For car sharing:

Total cost = fixed cost + cost depending on distance driven

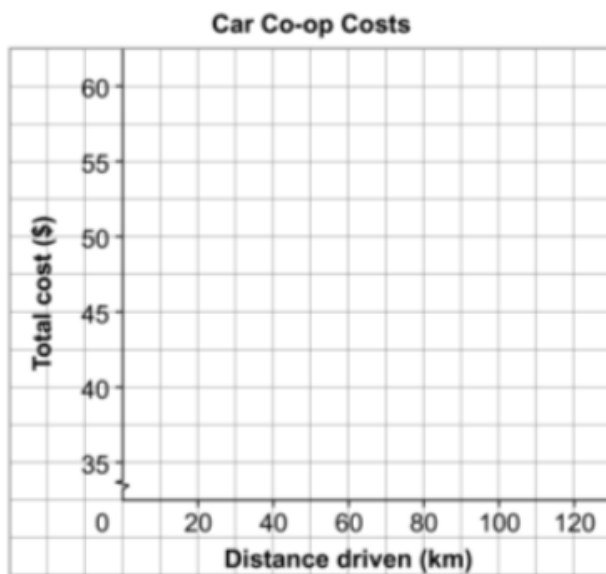
Carlo prepared a table to show the total cost to use a car for a day. Some parts of the table are missing because coffee got spilled on it. Work with a partner to complete the table.

What patterns do you see in the table?

What is the fixed cost? _____

What is the cost per kilometre? _____

Graph the data on the grid below.

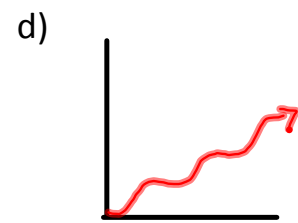
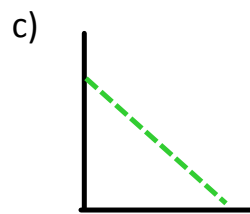
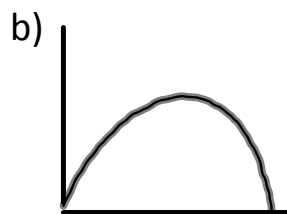
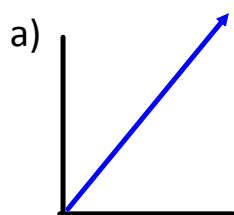


Car Co-op Costs	
Distance driven (km)	Total cost (\$)
0	
10	
20	
30	
40	
50	
60	49.00
70	50.50
80	52.00
90	53.50
100	55.00

Write a rule to calculate the total cost when you know the distance driven.

Write an equation. Use C for the total cost in dollars, and n for the distance driven in kilometres.

Ex 1 : Direct, Partial or Neither?



e) $H = 4t + 5$

f) $y = 16x$

Ex 2: Given two plans to hire a tutor:

Plan A
Cost: \$10/hr

Plan B
Cost: \$25 plus \$2/hr

Write an equation for each plan. Use C for the cost and h for the # of hours.

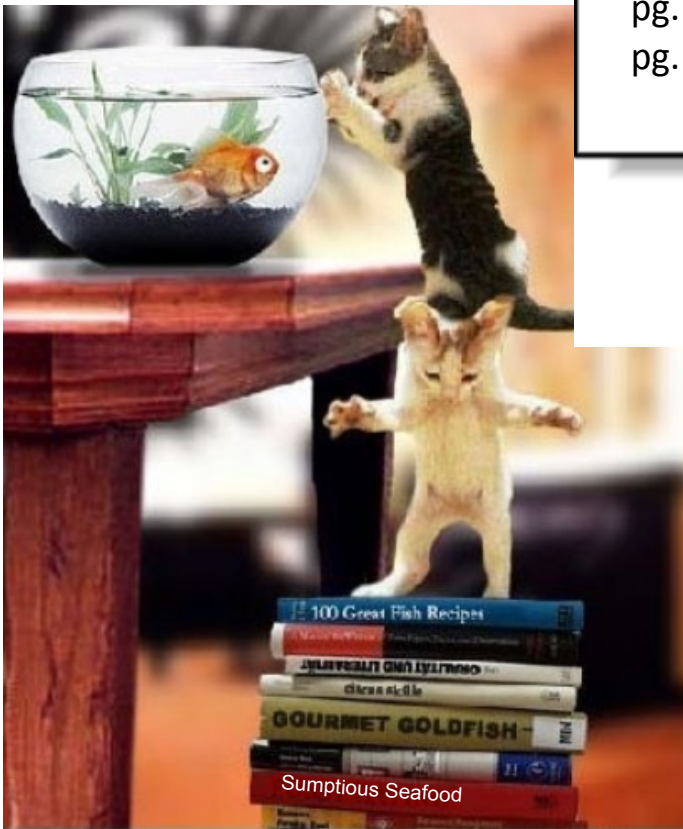
Ex 3: A phone company charges \$20/month plus 10 cents a minute.

remember 10 cents = \$0.10

a) Write an equation for the total charge, **C**, in dollars per month, in terms of **n** minutes of long distance

$$\text{Cost} = \text{variable cost} + \text{fixed cost}$$

b) What is the total cost for 100 min of long distance?



Working together:
pg. 207 # 1
pg. 213 # 1, 8b

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Homework
pg. 207 # 3,7
pg. 213 # 2a,5,7ab,9
Quiz tomorrow