

**K. How to identify direct and partial variation from an equation**

15. For each of the following equations, identify the relationship as being **direct** or **partial**.

- a.  $y = \frac{-1}{8}x - 5$  *partial*  
 b.  $y = -x + 2$  *partial*  
 c.  $y = 3.5x$  *direct*  
 d.  $y = 5x + 0$  *direct*  
 e.  $y = 200 - x$  *partial*  
 f.  $y = 52 + \frac{1}{2}x$  *partial*

**L. How to identify direct and partial variation from a table**

16. For each of the following tables, identify the relationship as being **direct** or **partial**.

a. *partial*

x	y
0	19
1	16
2	13
3	10
4	7

b. *direct*

x	y
-2	8
-1	4
0	0
1	-4
2	-8

c. *partial*

x	y
1	0
2	5
3	10
4	15
5	20

**M. How to calculate first differences**

17. For each of the following, determine whether the relationship is linear or non-linear without graphing.

a. *linear*

x	y
0	19
1	16
2	13
3	10
4	7

*>-3*  
*>-3*  
*>-3*  
*>-3*

b. *linear*

x	y
4	33.5
8	39.1
12	44.7
16	50.3
20	55.9

*>5.6*  
*>5.6*  
*>5.6*  
*>5.6*

c. *non-linear*

x	y
0	1
3	4
6	9
9	16
12	25

*>3*  
*>5*  
*>7*  
*>9*

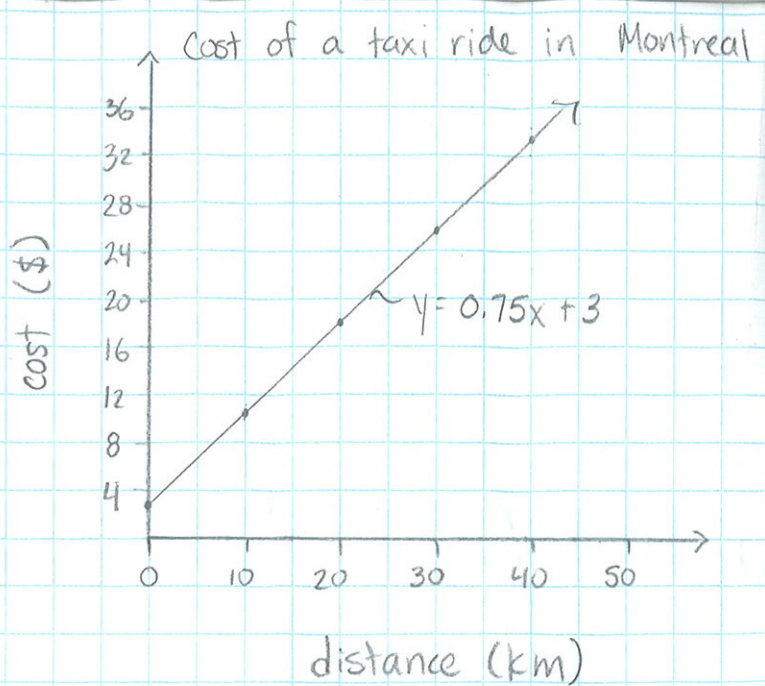
**N. Putting it all together (Rule of 4)**

18. For each of the following situations, write an **equation**, draw a **graph**, and create a **table of values**.

- a. You are visiting Montreal, and a taxi company charges a flat fee of \$3.00 for using the taxi and an additional \$0.75 per kilometer.  
 *$y = 0.75x + 3$*
- b. A plumber charges a fee of \$40 to make a house call. He also charges \$15 an hour for labour.  
 *$y = 15x + 40$*
- c. Beth and Liz are starting a business tutoring students in math. In one month, they rent an office that costs them \$200 and charge \$25 per hour per student.  
 *$y = 25x - 200$*
- d. Amanda is tracking the progress of her plant's growth. When she purchases the plant, it is 7cm high, and it grows 2cm per day.  
 *$y = 2x + 7$*
- e. A plane is taking off at a rate of 2000 feet per minute.  
 *$y = 2000x$*
- f. A 750ml bucket has a hole and is leaking water at a constant rate of 5ml/s.  
 *$y = -5x + 750$*

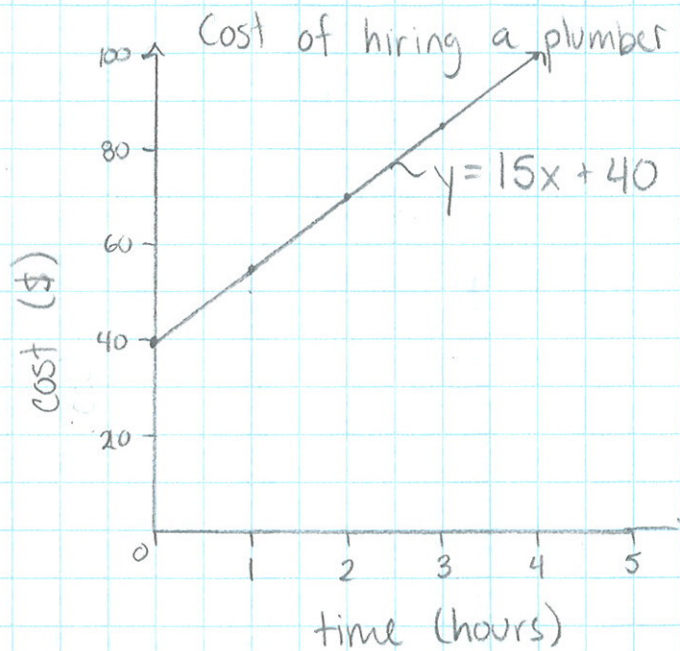
$$18a) y = 0.75x + 3$$

x (distance)	y (cost)
0	3
10	10.5
20	18
30	25.5
40	33



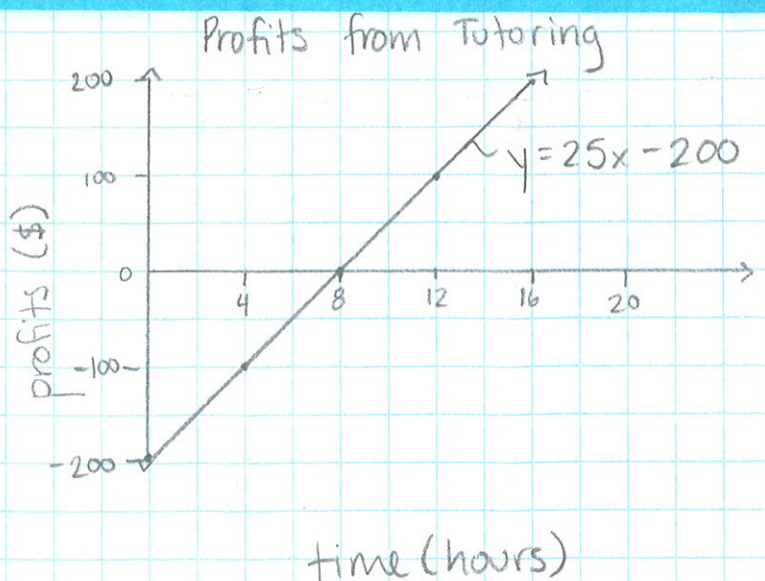
$$b) y = 15x + 40$$

x (hours)	y (cost)
0	40
1	55
2	70
3	85
4	100



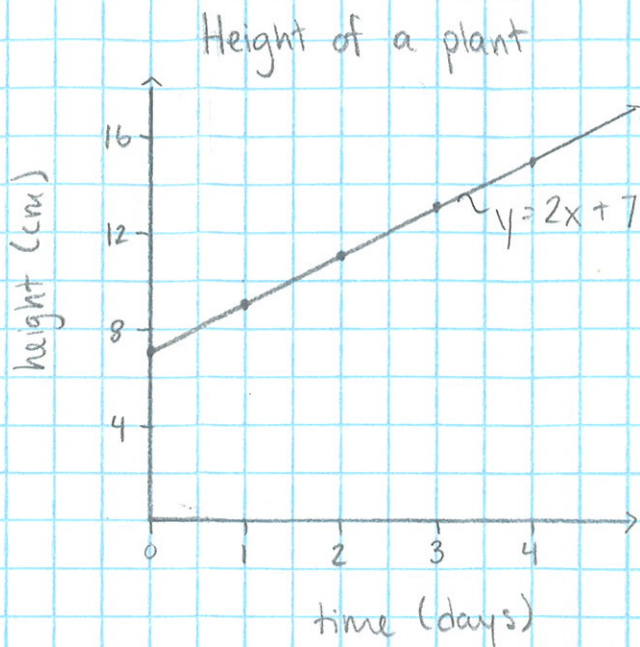
$$c) y = 25x - 200$$

x (hours)	y (profit)
0	-200
4	-100
8	0
12	100
16	200



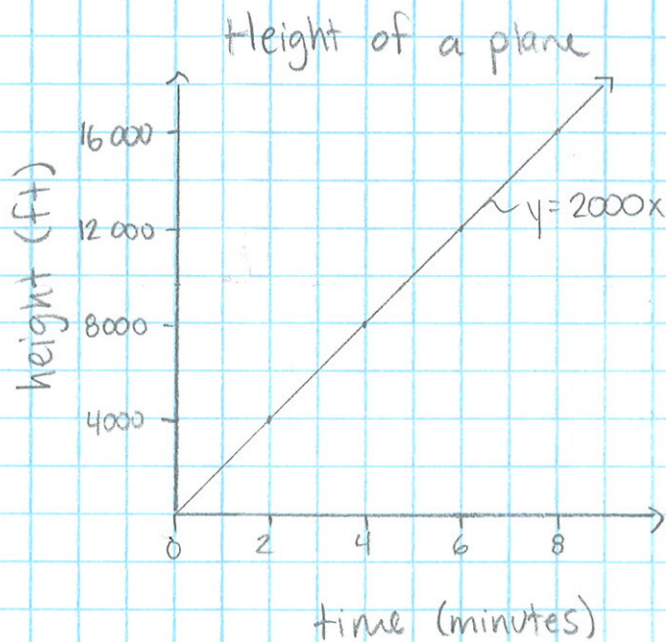
d)  $y = 2x + 7$

x (days)	y (height)
0	7
1	9
2	11
3	13
4	15



e)  $y = 2000x$

x (time)	y (height)
0	0
2	4000
4	8000
6	12000
8	16000



f)  $y = -5x + 750$

x (time)	y (volume)
0	750
50	500
100	250
150	0

