1) Your after school job at Sensational Sounds pays you $20 per shift plus an additional $5 for every CD that you sell.
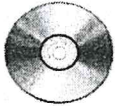
a) Create a **table** to represent this relationship and graph the relationship on the grid provided. Label fully.

# CDs	Earnings ($)
0	
1	
2	
3	
4	
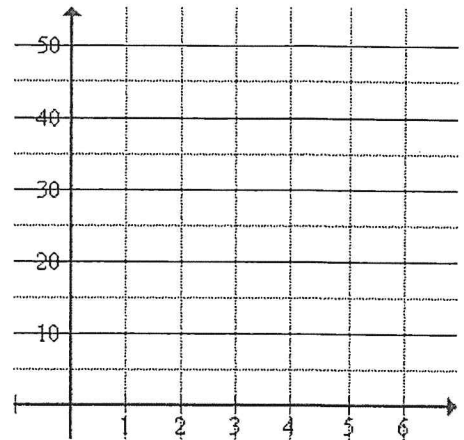
b) Does this relationship represent direct or partial variation? How do you know?

c) Determine an equation that models the earnings, E, in terms of the CDs sold, n.

d) **Use the equation** to determine the earnings if you sell 120 CDs.

2) Tom is renting a vehicle. It costs $120 to rent the vehicle plus an additional $0.14 for every kilometre that he travels.

a) Does this relationship represent a direct or partial variation? How do you know?

b) Write an equation that models the cost, C, in terms of number of kilometres travelled, n.

c) **Use the equation** to determine the total cost of the rental if he drove 500 km during the rental.

3) Marcie makes $12.50 an hour tutoring math.

a) Does this represent a direct or partial variation? How do you know?

b) Write an equation that models the pay, P, in terms of number of hours worked, h.

c) **Use the equation** to determine how many hours Marcie needs to tutor to make $350.

4) Taylor cuts lawns for the Smiths. He earns $5.00 an hour if he works less than 4 hours; between 4 and 6 hours, he earns $6; above 6 hours, he earns $7.

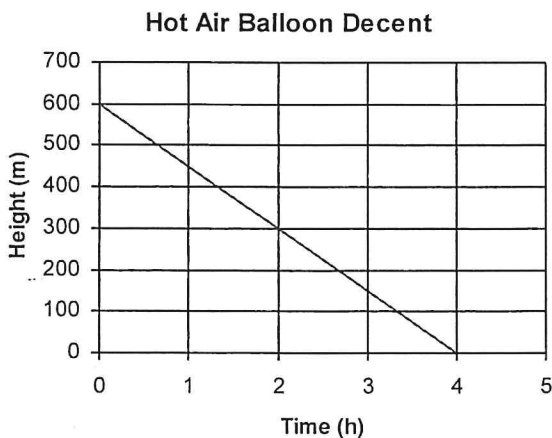a) Create a table to represent this relationship & graph it on the grid provided. Label fully.

# of hours	Earnings ($)	First Differences
1		
2		
3		
4		
5		
6		
7		
8		
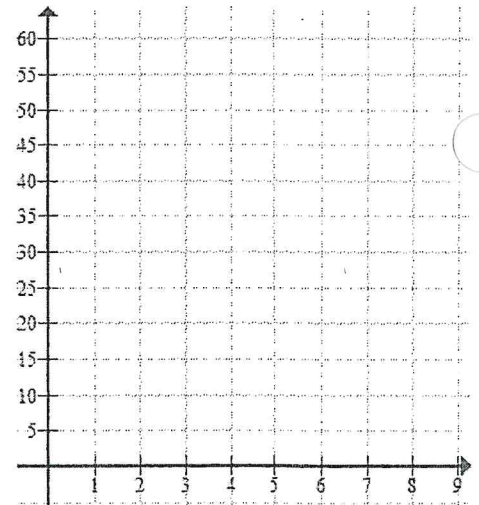
b) What do the first differences tell you about the type of relationship that exists?

5) Given the following graph, state the fixed part, the rate and the Equation.
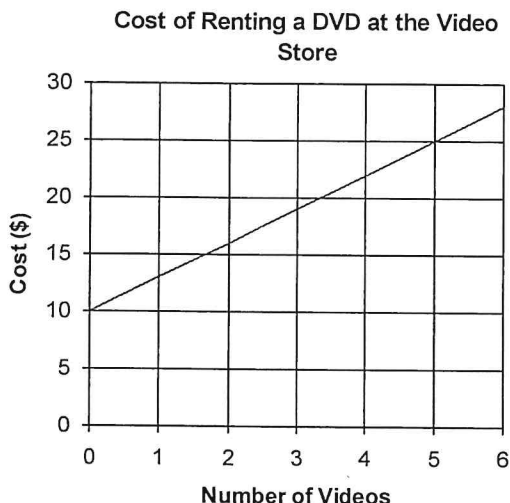
Hot Air Balloon Decent

Height (m) vs Time (h)

Initial Height= _____

Rate of Change= _____

Equation: _____

6) The graph below represents the costs associated with owning a membership at a video store. The cost depends on the number of DVD's you rent.

Cost of Renting a DVD at the Video Store

a) Does the graph represent a direct or partial variation? How do you know?

b) What is the fixed cost of holding a membership at the video store?

c) What is the cost per DVD?

d) Write an equation to represent the cost, **C** of renting **n** DVDs from the store.

e) **Use the equation** to determine the cost to rent 10 DVDs.

f) **Use the equation** to determine how many DVDs can be rented with $250.

7) Jen has $20 in her bank account. Every week she adds $10.

a) What is the fixed part of the relationship?

b) What is the rate of change?

c) Write an equation to represent this relationship where **A** is the amount in her bank account and **n** is the number of weeks.

d) Graph the relationship on the grid provided. Label fully.
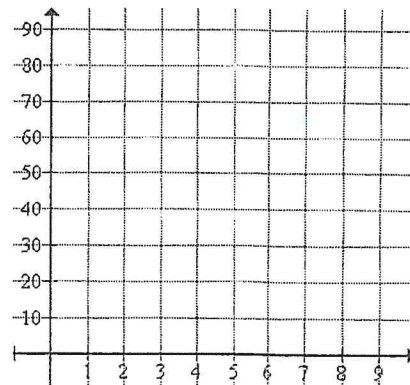
e) Draw a additional line that would show the following:
(i) Jen starts with the same amount ($20) but adds more money each week.
(ii) Jen starts with less money in the account but adds the same amount each week ($10).
(iii) Jen starts with less money in the account and adds less money each week.
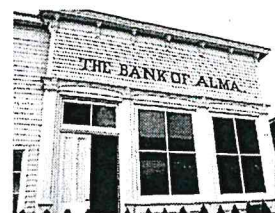
8) Two companies rent trucks by the hour. `Mac's Macks` charges $12 for the truck, plus $4 per hour. Lorrie's Loris only charges $8 per hour (with no fixed fee).

a) Write an equation for each company's cost, **C**, after **h** hours of rental.
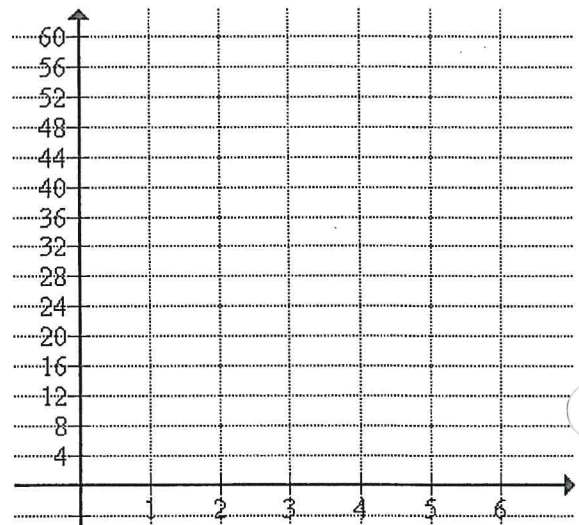
`Mac's Macks`: _____

Lorrie's Loris: _____

b) Graph both equations on the same grid. Label fully.

Mac's Macks	
Time (h)	Cost ($)
0	
2	
4	
6	

Lorrie's Loris	
Time (h)	Cost ($)
0	
2	
4	
6	

c) State the point of intersection. _____

d) What does this point mean in the context of this scenerio?

e) For what driving time is each company cheaper?

Final Answers:
1) b) Partial (line doesn't start at zero) c) E = 5n + 20 d) $620
2) a) Partial (initial value is not zero) b) C = 0.14n + 120 c) $190
3) a) Direct (initial value is zero) b) E = 12.50h c) 28 hours
4) b) The relation is not linear, although each of the two separate parts are linear.
5) 600m, −150m/h, H = 600 − 150t
6) a) Partial b) $10 c) $3/DVD d) C = 3n + 10 e) $40 f) 80 DVDs
7) a) $20 b) $10/week c) A = 10n + 20 e) Have your teacher check your lines.
8) a) MM: C = 4h + 12, LL: C = 8h
c) (3,24) Both companies will cost $24 if the truck is rented for 3 hours.
d) If you are driving for less than 3 hours, pick LL. If you are driving for more than 3 hours, pick MM.