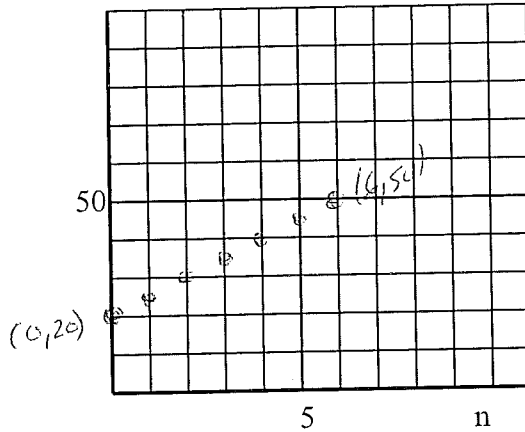1. Mike works as a radio repairman. He charges $ 5/h plus a flat fee of $20. If h represents the number of hours he works, and C represents his total fee, determine the equation relating the total charges to the hours worked.

h	C
0	20
1	25
2	30
3	35
4	40
5	45
6	50

$$C = 5h + 20$$

(14,54)

50

(0,20)

5   n

2. Determine the rate of change for the following.

x	1	2	3
y	5	8	11

Rate of change

$$= \frac{8-5}{2-1}$$

$$= 3$$
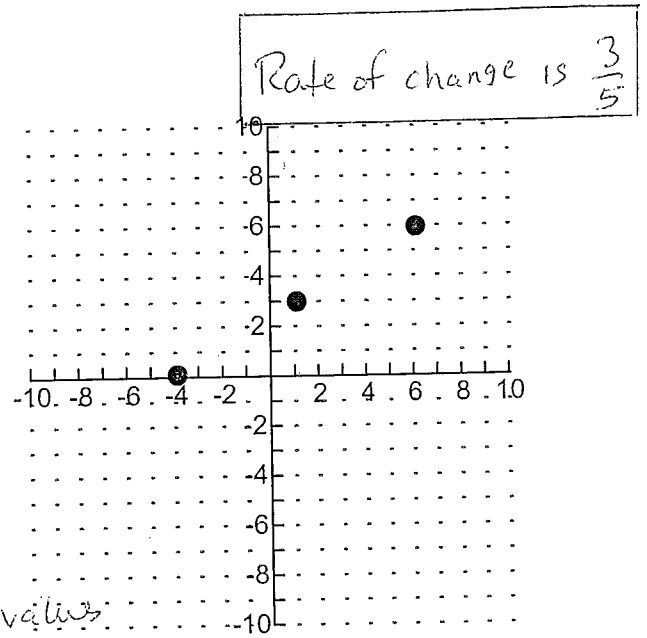
Rate of change is $\frac{3}{5}$

3. Determine the relation that matches the table of values.
Find rate of change and starting number.

x	1	5	9
y	7	10	13

a) $r/c = \frac{3}{4} = 0.75$

b) start # = 4

c) $y = \frac{3}{4}x + 4$

4. Determine the rate of change and starting number for the relation $y = -3x + 7$. $r/c = -3$

5. A linear relation passes through (3, 4) and (7, 6). What is the rate of change?

$$r/c = \frac{6-4}{7-3}$$

$$= \frac{2}{4}$$

$$= \frac{1}{2}$$

14. A number is doubled and then 7 is added. The result is 31. What is the number?

$2x + 7 = 31$

$x = 12$

15. At the Haliburton Golf Club, the entrance fee is $50, while the per game charge is $7.50 per game. How many games can be played for a total of $290?

$C = 50 + 7.50n$

$290 = 50 + 7.50n$

$n = 32$

16. A local pizza store charges $5 for the basic pizza plus $0.50 per topping.

$C = 0.50n + 5$

add question → How many toppings for $10.50

answer
11 toppings

17. A mountain climber begins his climb at 750 m and proceeds to climb at a rate of 20 m per minute. How long will it take to climb to an altitude of 1290 m?

$A = 20x + 750$

$1290 = 20x + 750$

27 minutes

18. An airplane at an altitude of 3000m begins its descent at 150m/minute. How long until the plane lands? ---an altitude of zero---

$A = 3000 - 150n$

$0 = 3000 - 150n$

$n = 20$ minutes

6. Graph and label $y = -2x + 4$ using a table of values

x	y
-3	10
-1	6
0	4
1	2
2	0

$-2(-3) + 4$
$-2(-1) + 4$

(-3,10)

(0,4)

$y = -2x + 4$
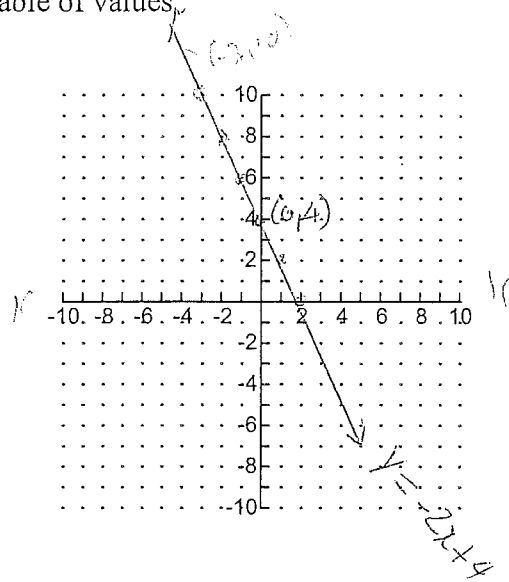
7. Graph and label $x - y = 3$
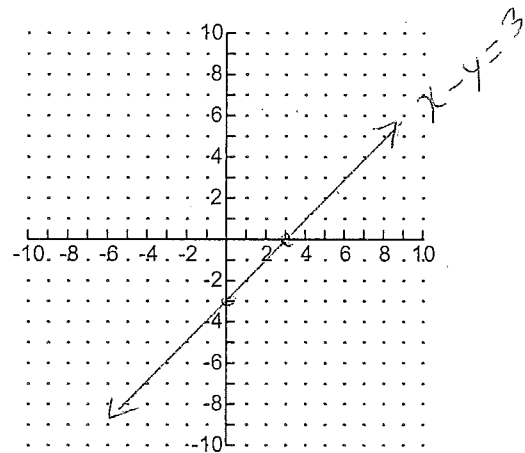
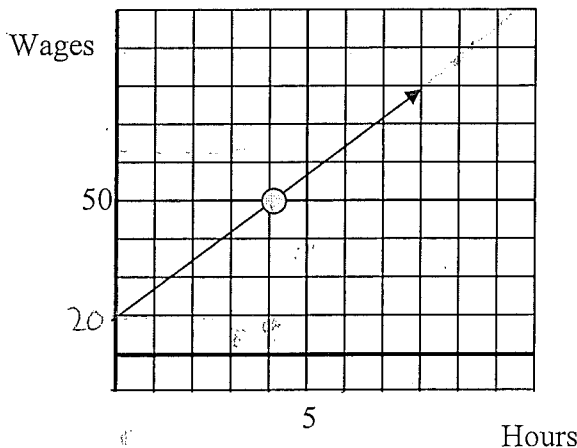| x	y
2	-1
3	0
4	1
5	2
6	3

$x - (-1) = 3$
$x - 0 = 3$
$x - 1 = 3$

$x + 1 = 3$

$x - y = 3$

8. a) Determine Peggy's hourly rate of pay from the graph.
   b) Estimate her wages for 6 hours of work. c) How many hrs does she need to work to earn $90?

Wages

50

20

5

Hours

hourly rate = $\dfrac{50 - 20}{4 - 0}$

$= \dfrac{30}{4}$

$= \$7.50/h$

$\dfrac{30}{4}$

$= 7.50$

b) 65

9. Solve the following equations

$a = 3/4$

a) $\dfrac{2x}{5} - 3 = 1$

b) $\dfrac{3}{a} - 1 = \dfrac{2}{5}$

c) $\dfrac{x}{2} + 3 = 1$

a)

$\dfrac{2x}{5} - 3 + 3 = 1 + 3$

$\dfrac{2x}{5} = 4$

$5\left(\dfrac{2x}{5}\right) = 5(4)$

$2x = 20$

$\boxed{x = 10}$

b)

$5a\left(\dfrac{3}{a}\right) - 5a(1) = 5a\left(\dfrac{2}{5}\right)$

$15 - 15a = 2a$

$15 = 17a$

$\dfrac{15}{17} = \dfrac{17a}{17}$

$\boxed{a = 15/17}$

c)

$\dfrac{x}{2} + 3 - 3 = 1 - 3$

$\dfrac{x}{2} = -2$

$2\left(\dfrac{x}{2}\right) = 2(-2)$

$\boxed{x = -4}$

10. Solve $2x - 1 = 5$ and verify your solution by graphing. See page 222

a)

$2x - 1 = 5$

$2x - 1 + 1 = 5 + 1$

$2x = 6$

$x = 3$

b) verify

i) Graph $y = 2x - 1$

$x = 3$

$y = 5$

$y = 2x - 1$