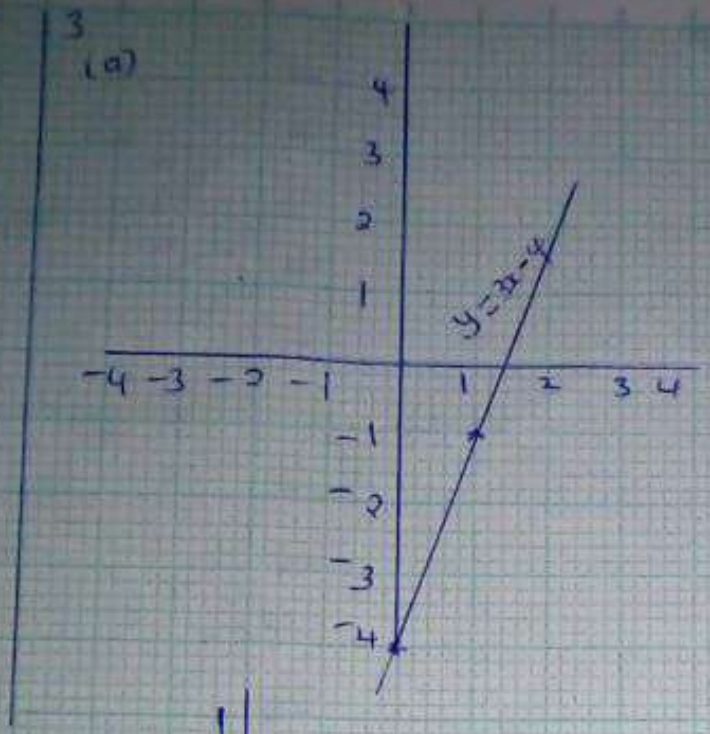
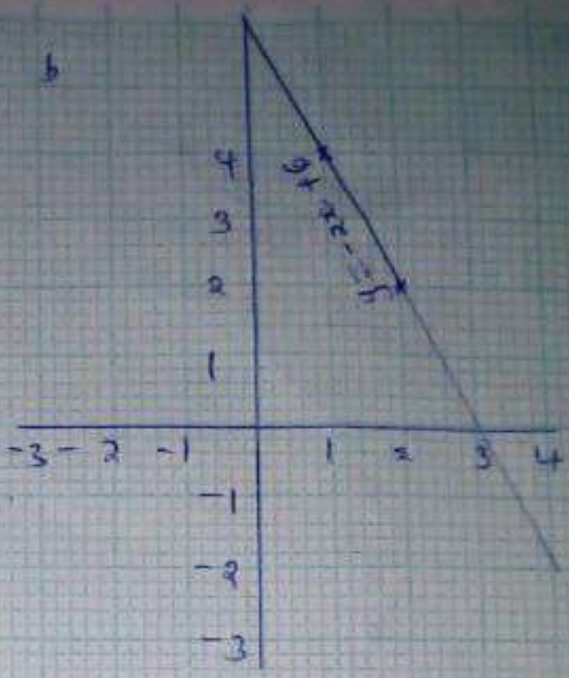
3

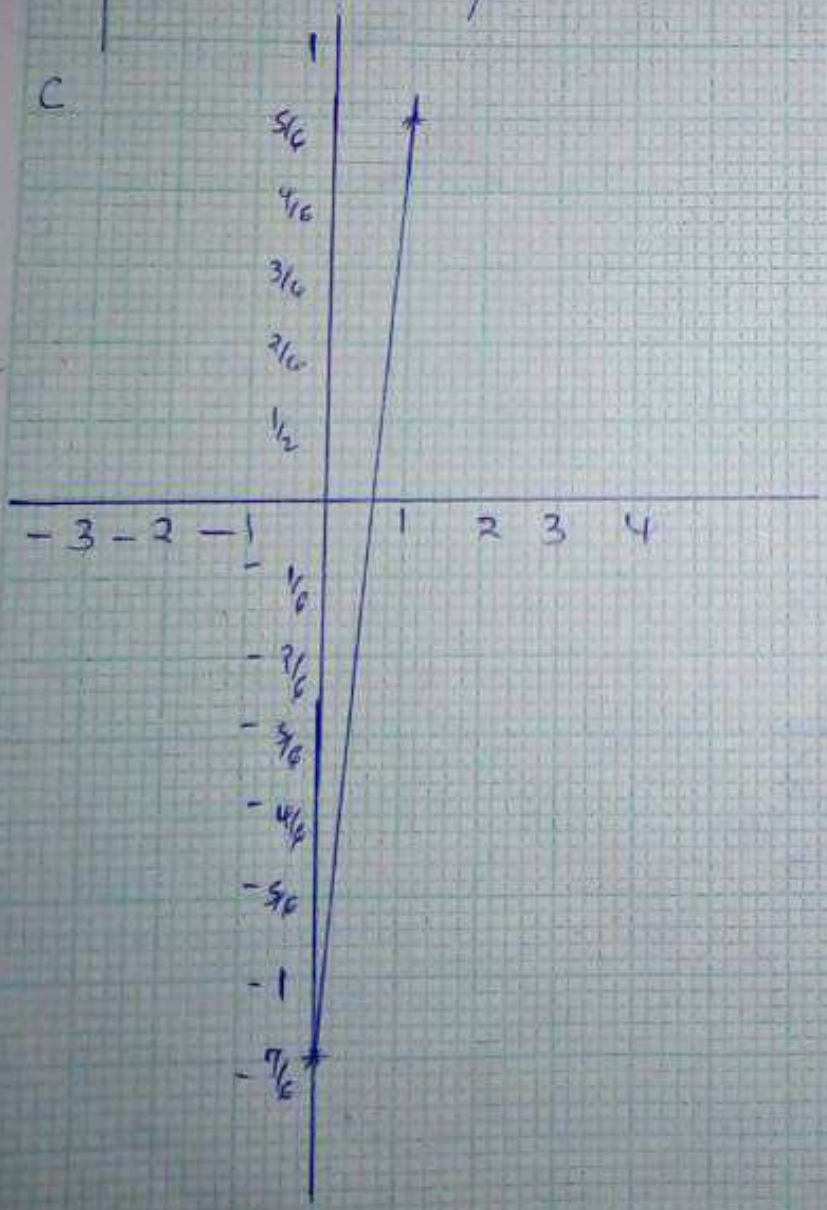
(a)



b



c



2 (ii) (a) x - intercept = 18.1 (b) x intercept = 5

y intercept = 21.6 y intercept = 4.5

(iii)

(a) $x = 7$

$y = 12.5$

(b) $2 \cdot 5x = 7$

$y = 2$

(c)

$y = -3x^2 + x + 2$

	-2	-1	0	1	2
	-6	0	2	0	-9

-11 -2

x intercept -0.67, 1

y intercept 2

5 (a)

(a)(i) base = 3 Coefficient = 0.5

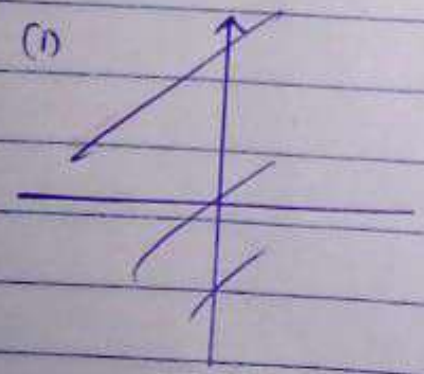
(b)(i) base = 2 Coefficient = 1

(ii) base = 0.5 Coefficient 100

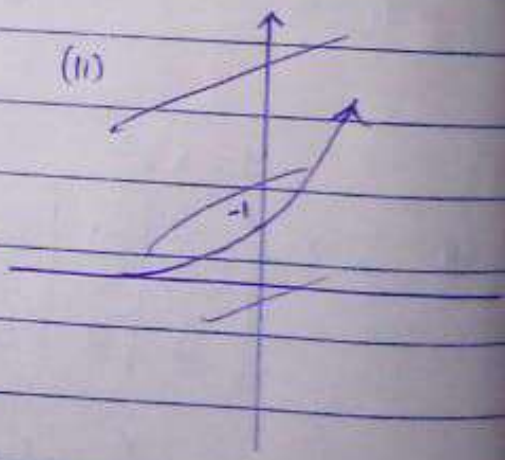
(b)

(c)

(i)



(ii)



((a)

5 c(i) -ve x has a large negative value.

(ii) x has a large negative value

(iii) x becomes very large

3.0

(1) a, b

(2) i

Line (a) (3,18) (8,12)

$$\frac{\delta y}{\delta x} = \frac{18-12}{3-8} = \frac{6}{-5}$$

$$= -\frac{6}{5} = -1.2$$

(x,y) (3,18) -1.2

$$\frac{18-y}{3-x} = -1.2$$

$$18 - y = 3.6 + 1.2x$$

$$-y = -3.6 - 18 + 1.2x$$

$$-y = 1.2x - 21.6$$

$$y = -1.2x + 21.6$$

x intercept

Line B (7,2) (36,29)

$$= \frac{29-2}{36-7} = \frac{27}{29}$$

$$= 0.93$$

(x,y) (7,2) 0.93

$$\frac{2-y}{7-x} = 0.93$$

$$2 - y = 6.51 - 0.93x$$

$$-y = 4.51 - 0.93x$$

$$y = 0.93x - 4.51$$

(ii)

(a) x - intercept = 18.1
y intercept = 21.6

(b) x intercept = 5
y intercept = 4.51

(iii)

(a) $x = 7$
$y = 12.5$

(b) $\frac{1}{2}x = 7$
$y = 2$

3.

(a) $y = 3x - 4$

Slope $= 3$

y intercept $= -4$

x	0	1
y	-4	-1

(b) $y = -2x + 6$

Slope $= -2$

y intercept $= 6$

x	1	2
y	4	2

(c) $-6y = 7 - 12x$

$y = 2x - \frac{7}{6}$

Slope $= 2$

y intercept $= -\frac{7}{6}$

x	0	1
y	$-\frac{7}{6}$	$\frac{5}{6}$

(4) $y = 2x^2$

(a)

x	-2	-1	0	1	2
	8	2	0	2	8

x intercept $= 0$

y intercept $= 0$

(b) $y = x^2 + 5x - 6$

-2	-1	0	1	2
-12	-10	-6	0	8

x intercept

y- intercept $= -6$

6.

(a) $\sum_{i=1}^{8} i = \frac{n(n+1)}{2} = \frac{8(8+1)}{2} = \frac{72}{2}$

$= 36$

(b) $\sum_{i=1}^{5} i^2 \quad \frac{n(n+1)(2n+1)}{6}$

$= \frac{5(5+1)(10+1)}{6}$

$\frac{5 \times 6 \times 11}{6}$

$= 55$

7 (a) $\sum_{i=1}^{6} i - \bar{x} \quad \bar{x} = 2.5$

$\frac{6(6+1)}{2} - 2.5 \times 6$

$21 - 15$

$= 6$

(b) $\sum_{i=1}^{4} (i - \bar{x})^2 \quad \bar{x} = 2.5$

$(i - 2.5)^2$

$= i^2 - 5i + 6.25$

$\sum_{i=1}^{9} i^2 - 5\sum_{i=1}^{9} + \sum_{i=1}^{9} 6.25$

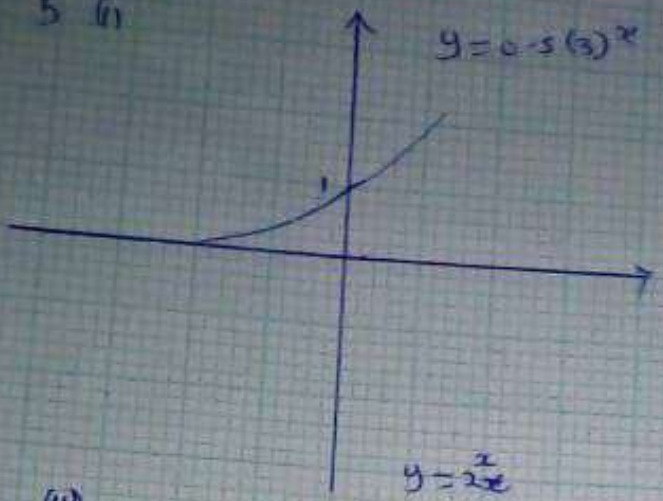
$\frac{n(n+1)(2n+1)}{6} - \frac{5(n)(n+1)}{2} + 6.25n$

$\frac{4 \times 5 \times 9}{4} - \frac{5 \times 4 \times 5}{2} + 6.25 \times 4$

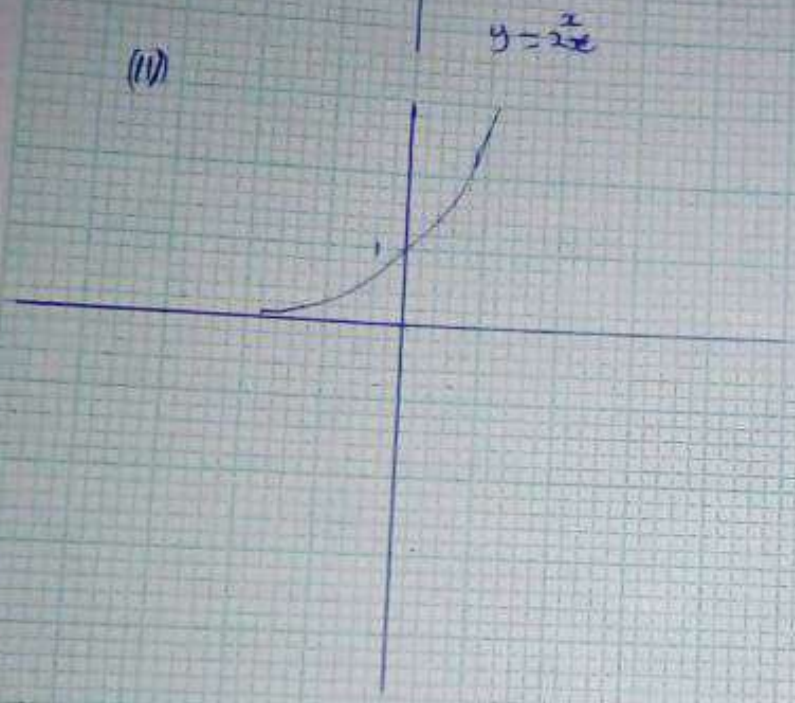
$30 - 50 + 25$

$= 5$

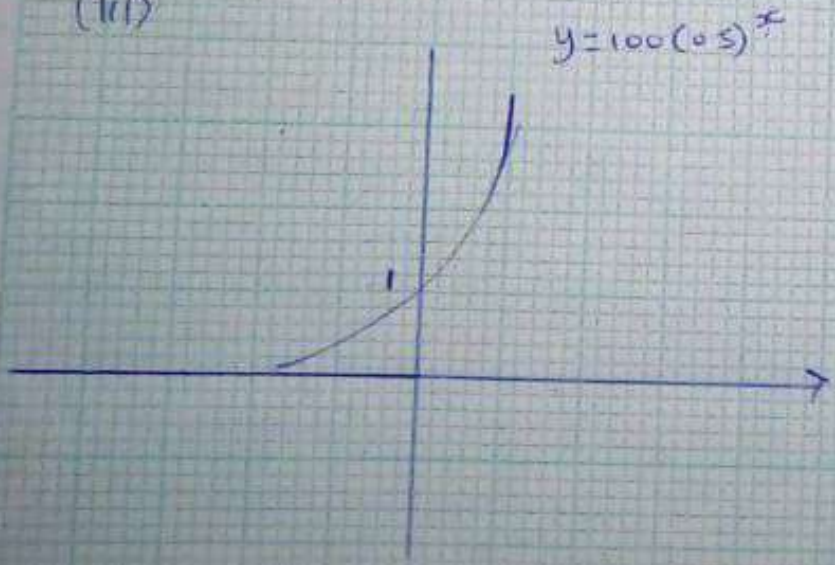
5 (i)



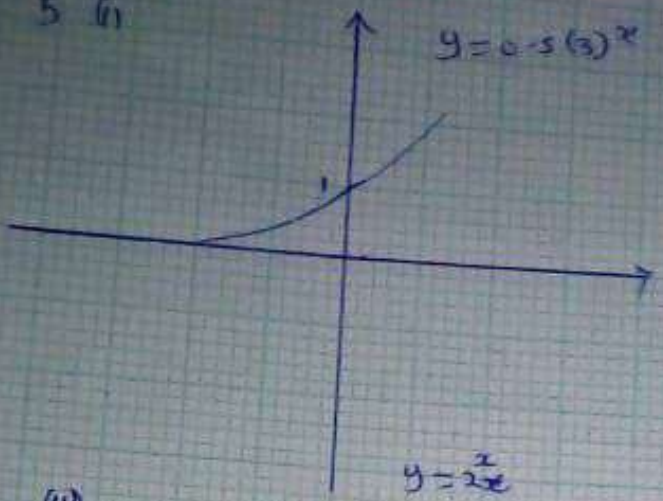
(ii)



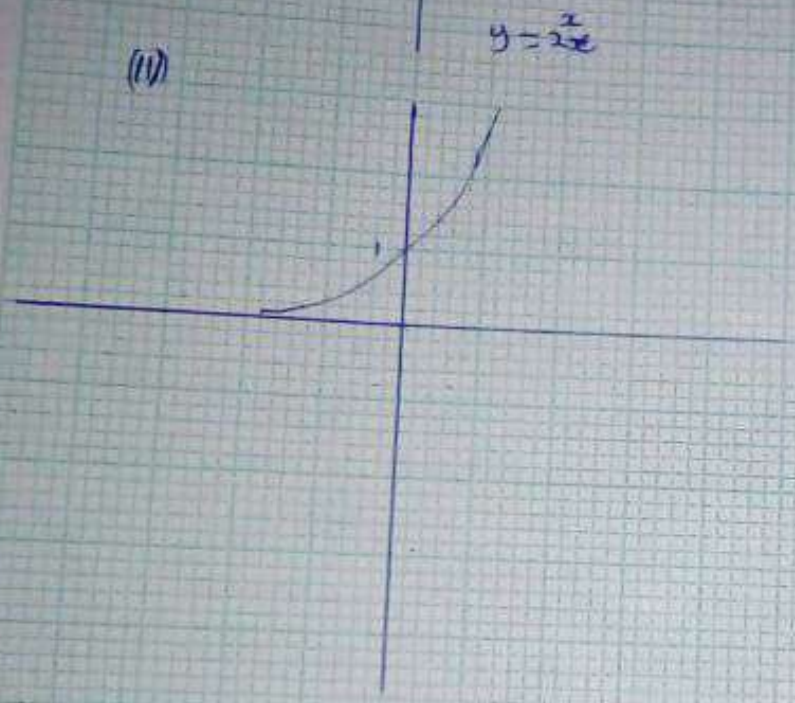
(iii)



5 (i)



(ii)



(iii)