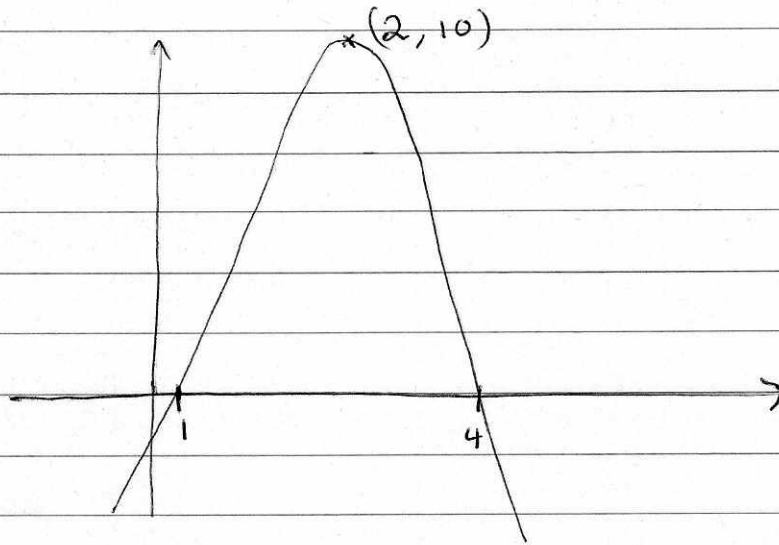
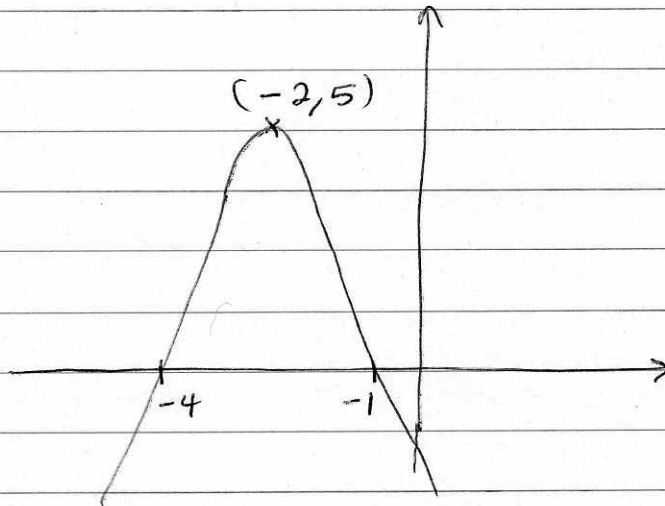


# C1 - ALGEBRA & FUNCTIONS (GRAPHS)

1a)

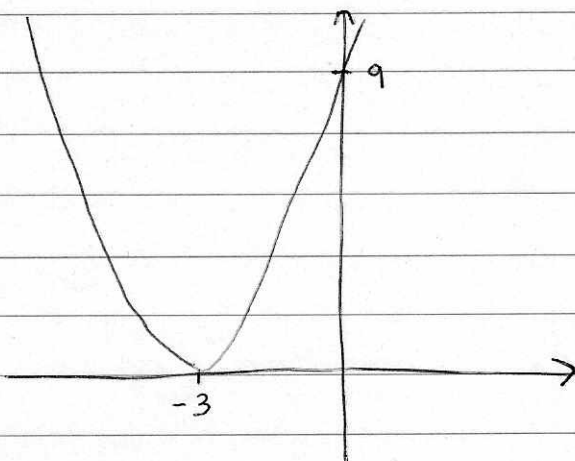


b/

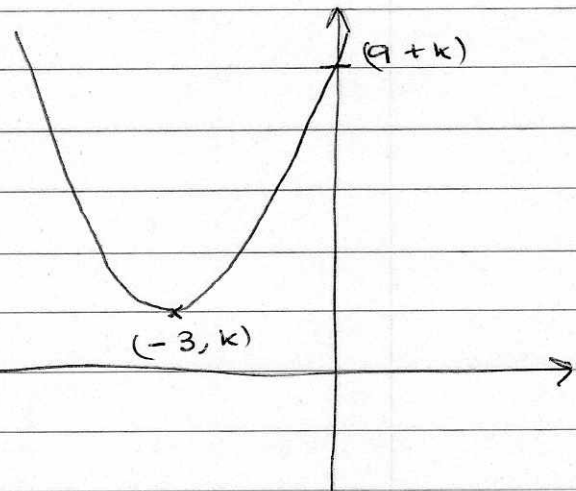


c/  $a = 2$

2a/



b/



3a)

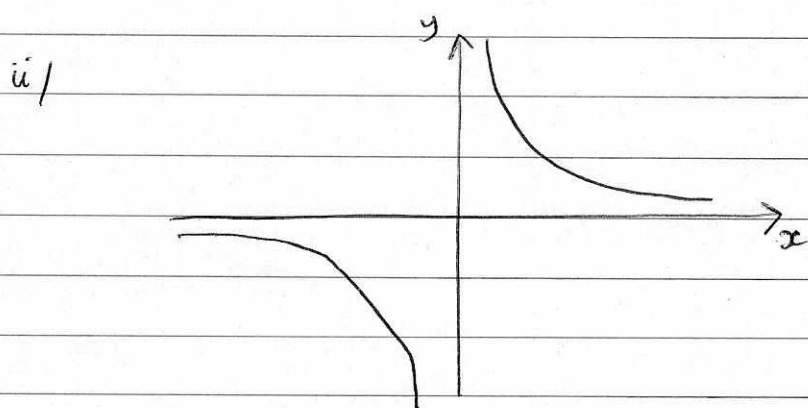
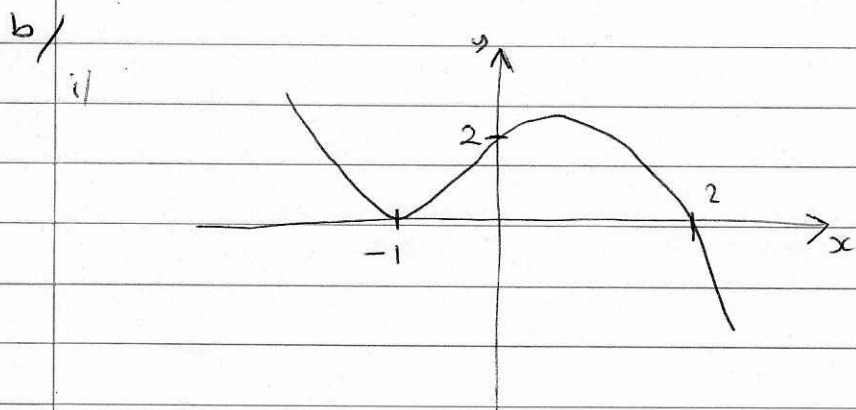
$$y = (x+1)^2(2-x)$$

(1, a)

$$a = (1+1)^2(2-1)$$

$$= (2)^2(1)$$

$$= \underline{\underline{4}}$$

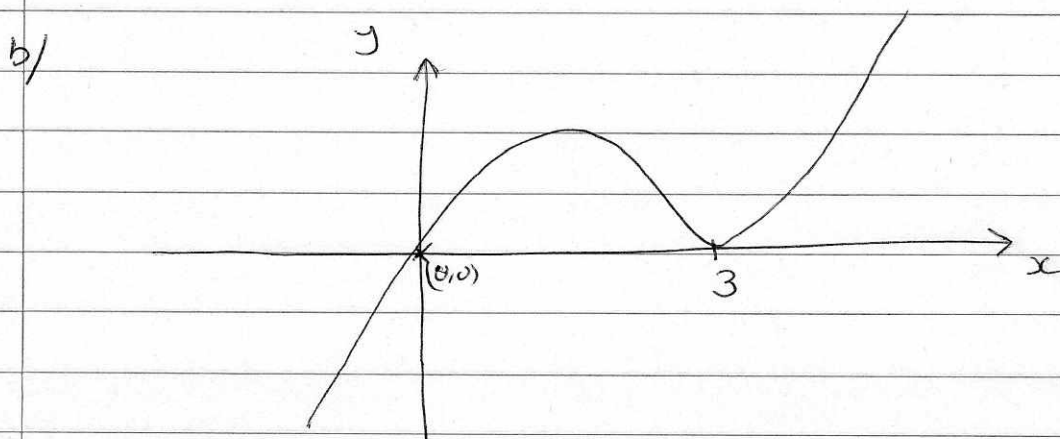


c/ 2 solutions. The graphs would intersect twice.

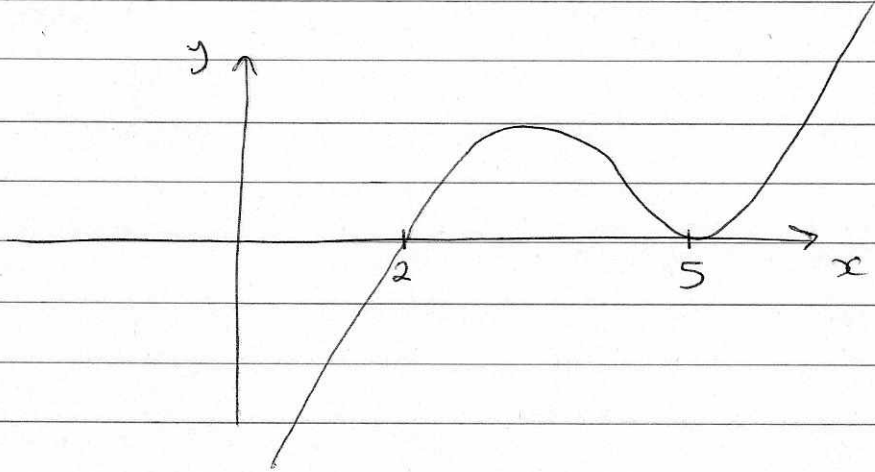
4a)

$$x(x^2 - 6x + 9)$$

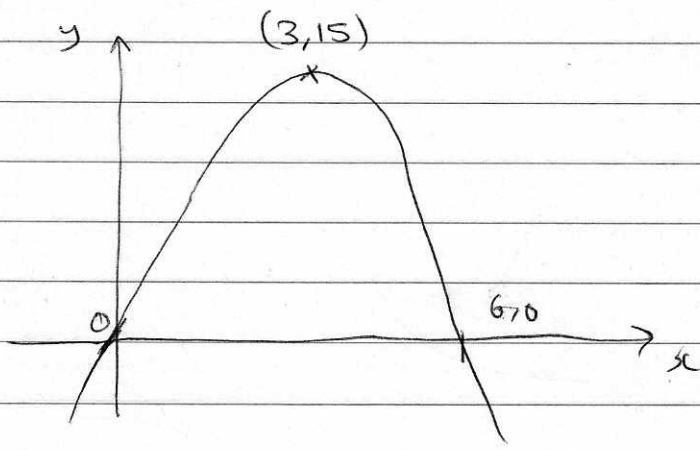
$$x(x-3)(x-3)$$



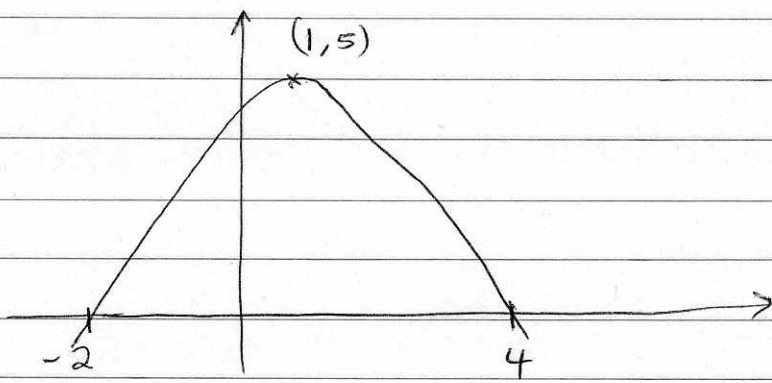
c/



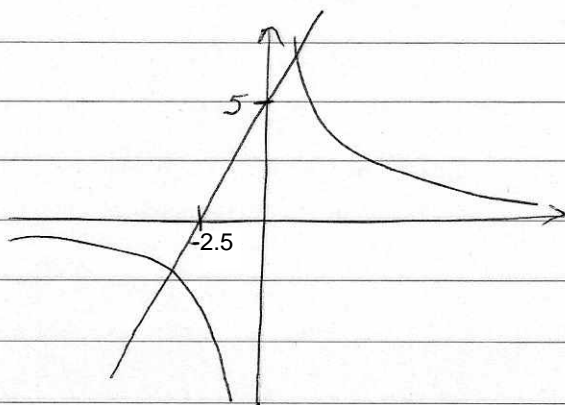
5a)



b/



6a/



b/

$$\frac{3}{x} = 2x + 5$$

$$3 = 2x^2 + 5x$$

$$0 = 2x^2 + 5x - 3$$

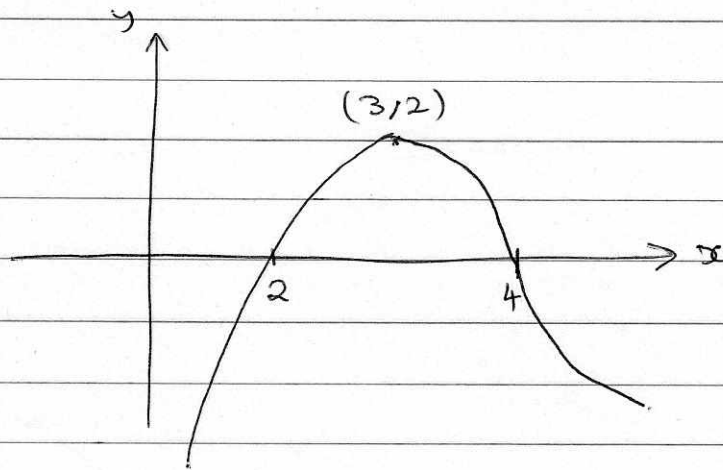
$$0 = (2x - 1)(x + 3)$$

$$x = \frac{1}{2} \quad x = -3$$

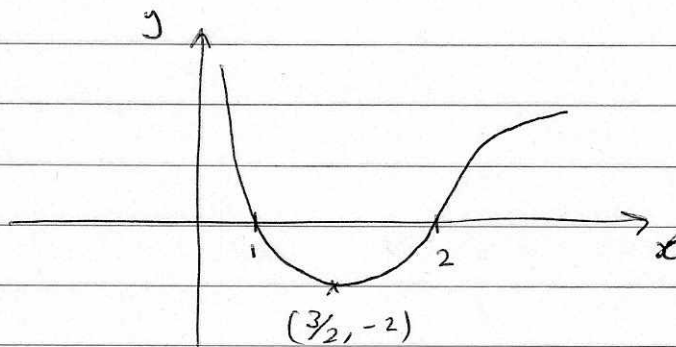
$$y = 6 \quad y = -1$$

$$\underline{\underline{(\frac{1}{2}, 6)}} \quad \underline{\underline{(-3, -1)}}$$

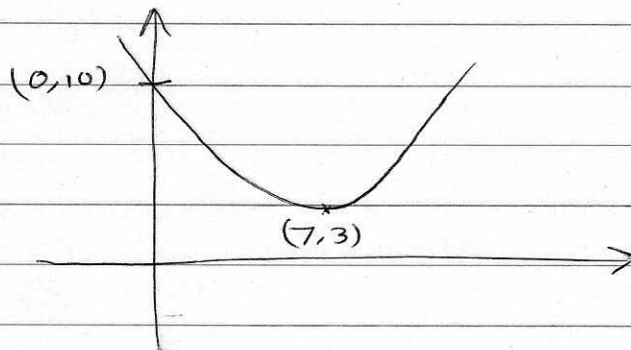
7a)



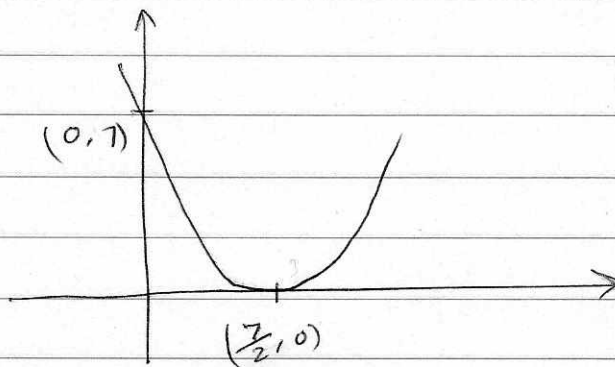
b)



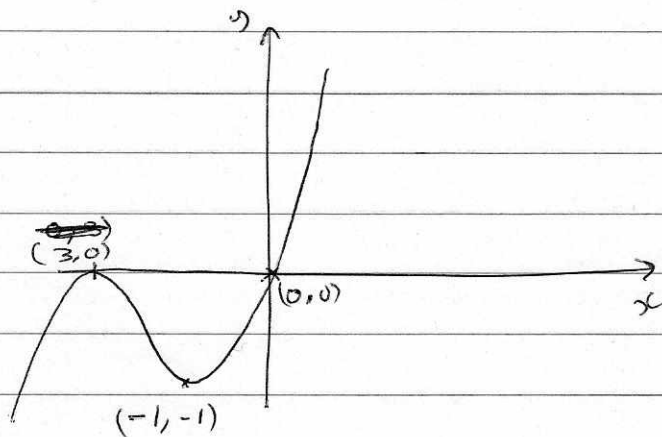
8a)



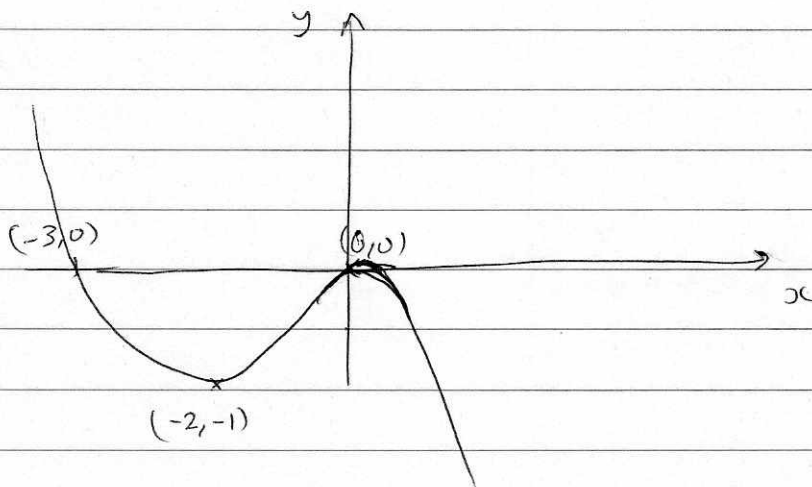
b)



9a)



b)



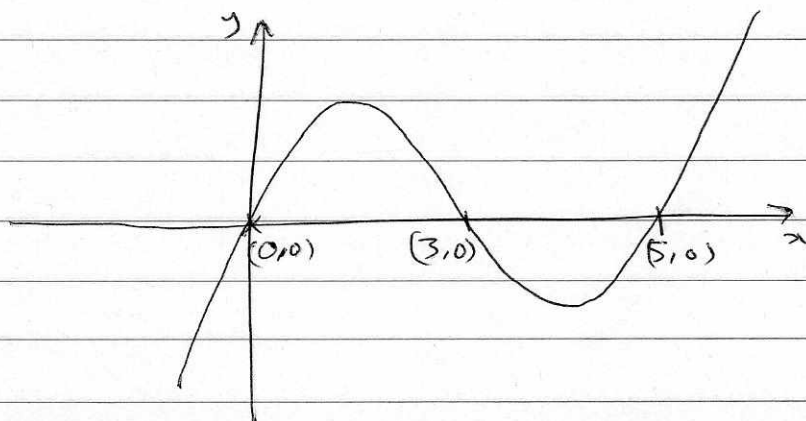
10a)

$$\begin{aligned}
 f(x) &= (x^2 - 6x)(x - 2) + 3x \\
 &= x^2 - 2x^2 - 6x^2 + 12x + 3x \\
 &= x^3 - 8x^2 + 15x \\
 &= x(x^2 - 8x + 15)
 \end{aligned}$$

b/

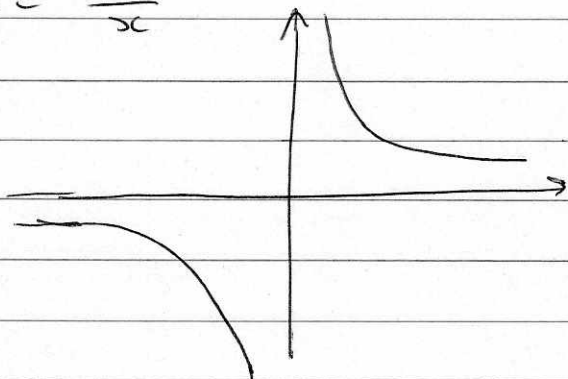
$$x(x - 3)(x - 5)$$

c/

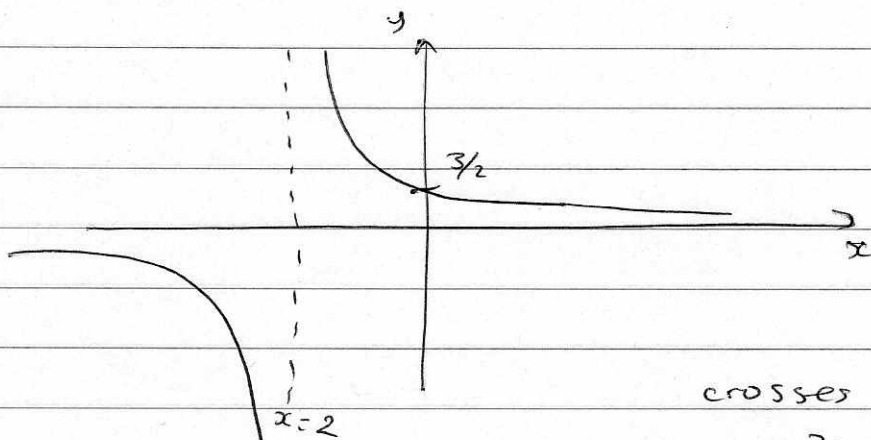


11.

$$y = \frac{3}{x}$$



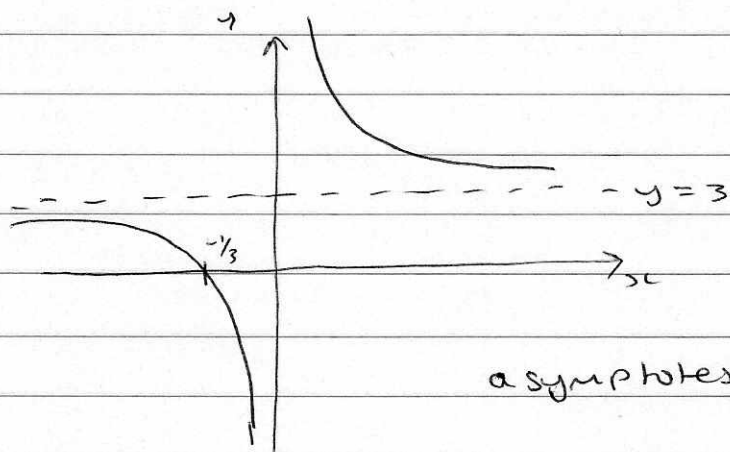
a/



crosses  $y$  when  $x=0$   
 $y = 3/2$

b/ asymptotes at  $y=0$  and  $x=2$

12 a/



asymptotes at  $x=0$  and  $y=3$

b) crosses  $x$  when  $y=0$

$$y = \frac{1}{x} + 3$$

$$0 = \frac{1}{x} + 3$$

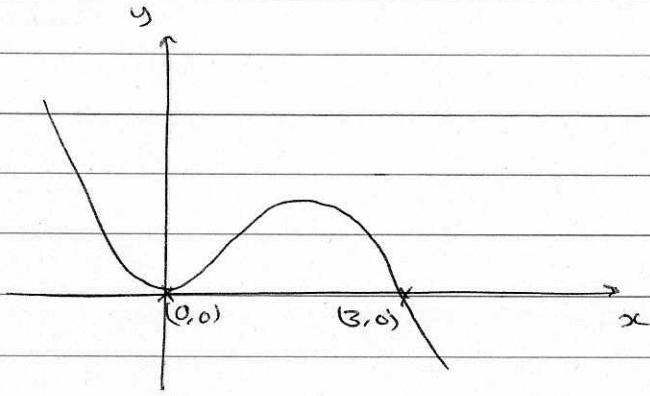
$$-3 = \frac{1}{x}$$

$$x = \underline{\underline{-1/3}}$$

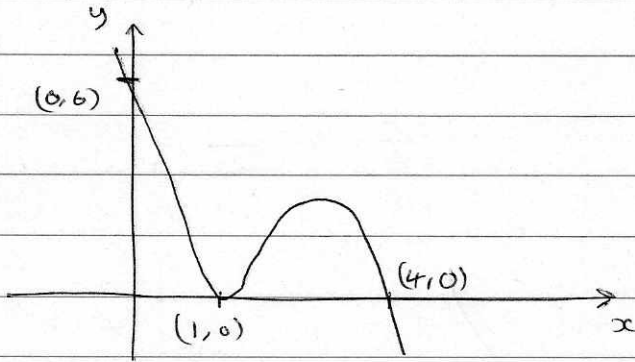
$$\underline{\underline{(-1/3, 0)}}$$



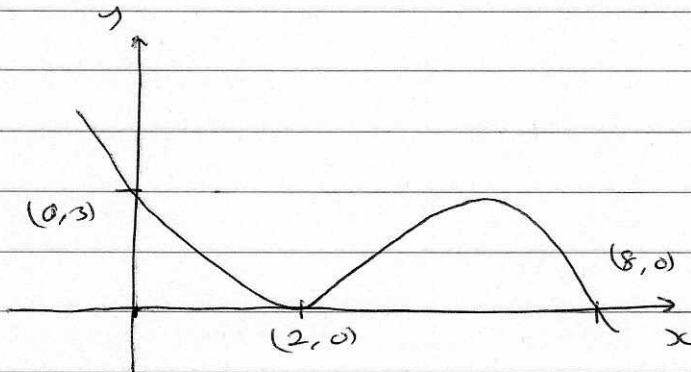
13a1



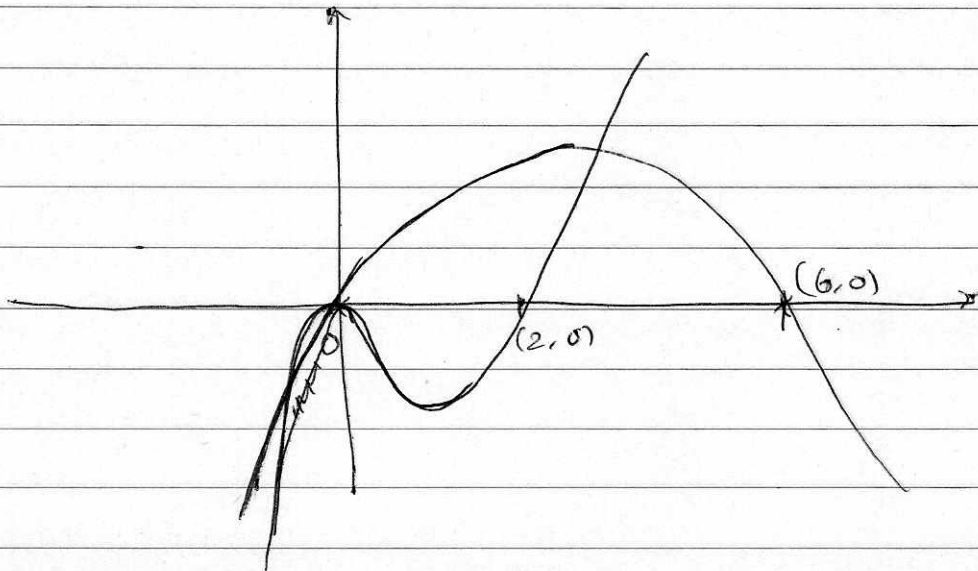
b1



c1



14a1



b)

$$x^2(x-2) = x(6-x)$$

$$x^3 - 2x^2 = 6x - x^2$$

$$x^3 - x^2 - 6x = 0$$

$$x(x^2 - x - 6) = 0$$

$$x(x-3)(x+2) = 0$$

$$x=0 \quad x=3 \quad x=-2$$

$$\text{when } x=0 \quad y=0$$

$$\text{when } x=3 \quad y=3(6-3)$$

$$= 9$$

$$\text{when } x=-2 \quad y=-2(6--2)$$

$$= -16$$

$$\underline{(0,0)}, \underline{(3,9)}, \underline{(-2,-16)}$$

~~Ha.~~