

$$y = mx + b$$

$$a) \quad y = x^2 + 3x$$

$$\begin{pmatrix} x & y \\ 1 & 4 \end{pmatrix}$$

$$\frac{y - y_1}{x - x_1} = m$$

$$y = 1^2 + 3(1)$$

$$y = 1 + 3$$

$$y = 4$$

$$\frac{y - 4}{x - 1} = 3$$

$$y - 4 = 3(x - 1)$$

$$y - 4 = 3x - 3$$

$$0 = 3x - y + 1$$

~~$$b) \quad i) \quad \frac{y - y_1}{x - x_1} = \frac{y_2 - y_1}{x_2 - x_1}$$~~

~~$$= \frac{y - 5}{x - 2} = \frac{3 - 5}{4 - 2}$$~~

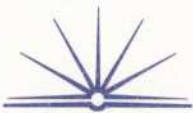
~~$$= 6 \frac{y - 5}{x + 2} = \frac{3 - 5}{4 + 2}$$~~

~~$$= 6(y - 5) = -2(x + 2)$$~~

~~$$6y - 30 = -2x - 4$$~~

~~$$0 = -2x - 6y + 26$$~~

P.T.O.



$$i) \frac{y_2 - y_1}{x_2 - x_1} = m$$

$$= \frac{3 - 5}{4 - -2} = m$$

$$4 - -2$$

$$= \frac{-2}{6} = m$$

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

$$\therefore \frac{y - y_1}{x - x_1} = -\frac{1}{3}$$

$$\frac{y - 3}{x - 4} = -\frac{1}{3}$$

$$3(y - 3) = -1(x - 4)$$

$$3y - 9 = -x + 4$$

$$x + 3y - 13 = 0$$

ii



$$\text{ii) } D = \sqrt{(x_1 + x_2)^2 - (y_1 + y_2)^2}$$

$$AB = \sqrt{(-2+4)^2 - (5+3)^2}$$

$$AB = \sqrt{(4)^2 - (64)}$$

$$AB =$$

$$\text{ii) } AB = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

$$AB = \sqrt{(4 - -2)^2 + (3 - 5)^2}$$

$$AB = \sqrt{(6)^2 + (-2)^2}$$

$$AB = \sqrt{36 + 4}$$

$$AB = \sqrt{40}$$

$$AB = \sqrt{10} \times \sqrt{4}$$

$$AB = 2\sqrt{10}$$

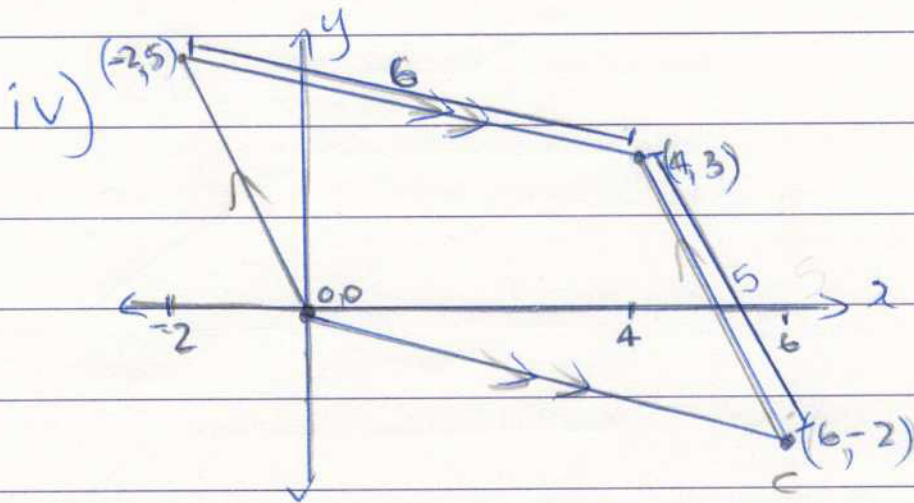
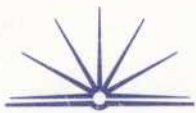
$$\text{iii) } \left| \frac{ax + by + c}{\sqrt{a^2 + b^2}} \right|$$

$$a = 1 \quad b = 3 \quad c = -13$$

$$= \left| \frac{1 + 3 - 13}{\sqrt{1^2 + 3^2}} \right|$$

$$= \frac{-9}{10}$$

$$10$$



$$6 \times 5 = 30 \text{ cm}^2$$

v)

$$\left| \frac{ax + by + c}{\sqrt{a^2 + b^2}} \right|$$

$$C(6, -2) \quad B(4, 3)$$