

Sec 4 Maths D weekend Homework

4C1

23/3/05

Q⁴ 1)

$$y = \frac{12}{x} - x$$

X	1	1.5	2	3	4	5	6	8
Y	11	6.5	4	1	-1	-2.6	-4	-6.5

(a) $a = -2.6$

(c) gradient = $\frac{8-0.2}{1-3} = -3.9$

(d) (i) $\frac{12}{x} - x - 3 = 2x$
 $\frac{12}{x} - x = 2x + 3$

Draw $y = 2x + 3$

x	1	4	8
y	5	11	19

$x = 1.5$

(ii) $x^2 + 2x - 12 = 0$

x	1	4	8
y	-9	12	68

$x^2 + 2x = 12$

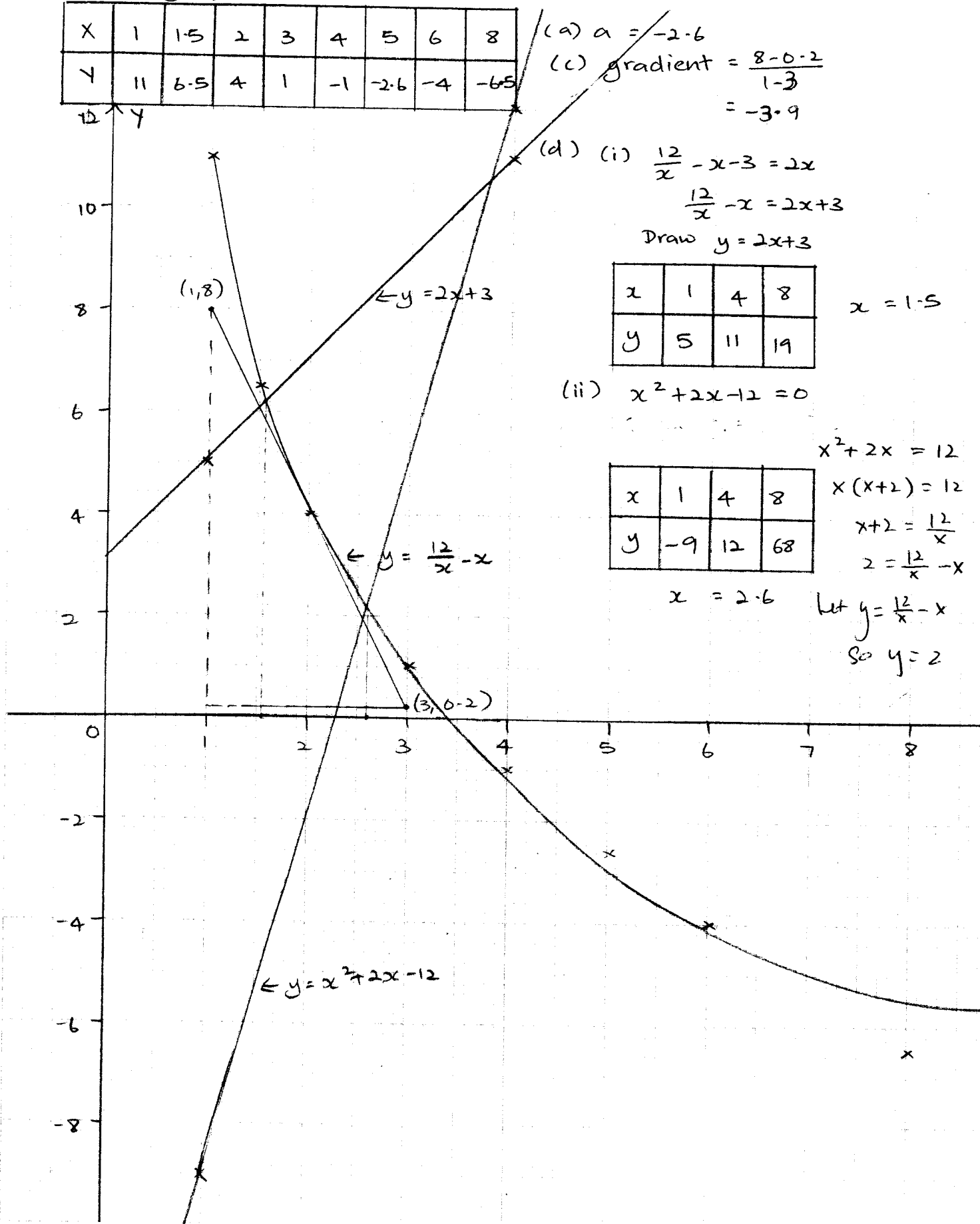
$x(x+2) = 12$

$x+2 = \frac{12}{x}$

$2 = \frac{12}{x} - x$

$x = 2.6$

Let $y = \frac{12}{x} - x$
 So $y = 2$



Q^y 2)

$$S = 6 - \frac{1}{2}t^2$$

T	-4	-3	-2	-1	0	1	2	3	4
S	-2	1.5	4	5.5	6	5.5	4	1.5	-2

$$\begin{aligned} (a) \quad a &= 6 - \frac{1}{2}(-3)^2 \\ &= \frac{3}{2} \\ b &= 6 - \frac{1}{2}(-1)^2 \\ &= \frac{11}{2} \\ c &= 6 - \frac{1}{2}(2)^2 \\ &= 4 \end{aligned}$$

(i)(i) Line of symmetry:
 $t=0$

(ii) $S = 3.5$

(iii) Coordinates = $(0, 6)$

(d) $t^2 + t - 10 = 0$

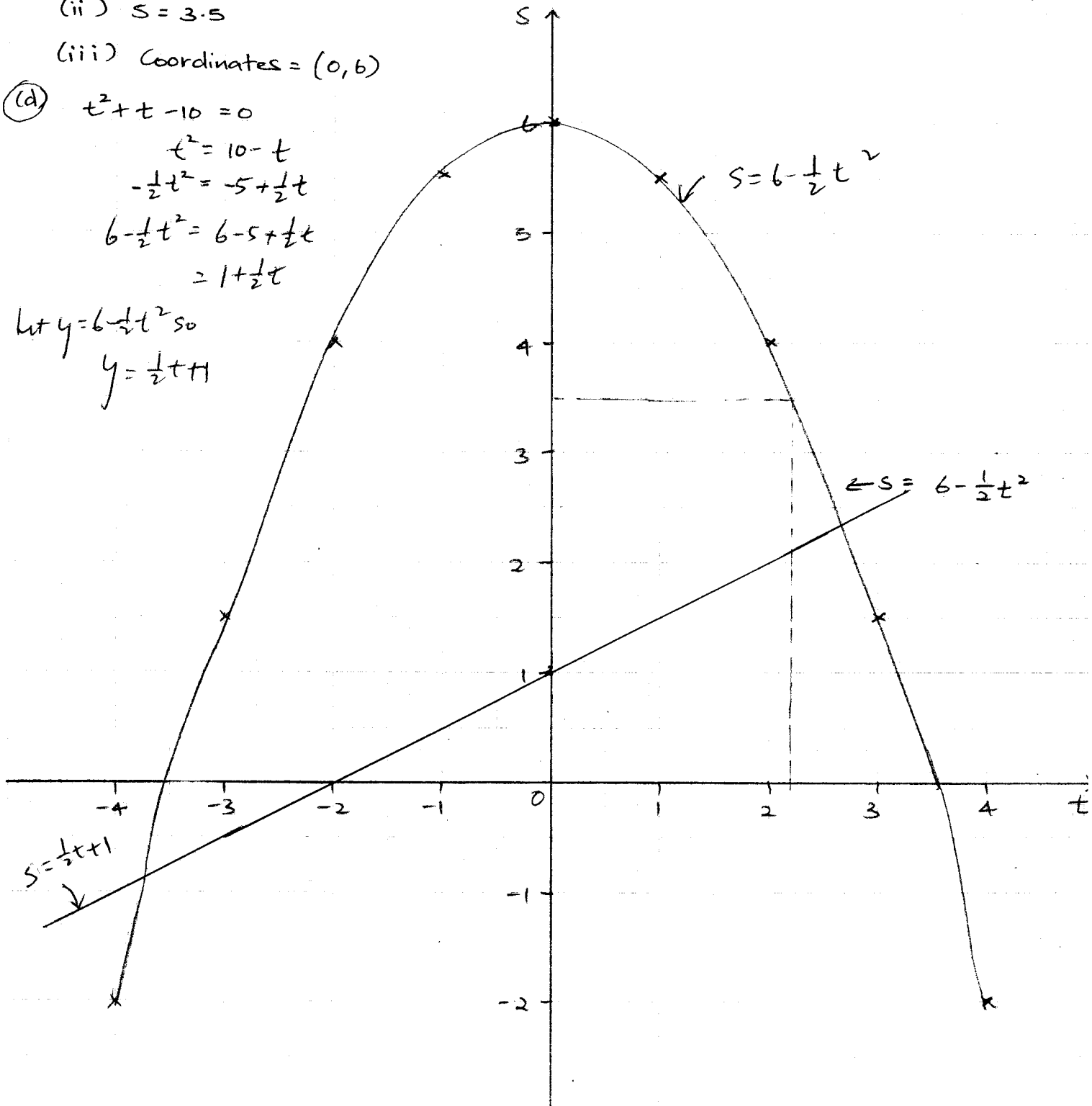
$$t^2 = 10 - t$$

$$-\frac{1}{2}t^2 = -5 + \frac{1}{2}t$$

$$\begin{aligned} 6 - \frac{1}{2}t^2 &= 6 - 5 + \frac{1}{2}t \\ &= 1 + \frac{1}{2}t \end{aligned}$$

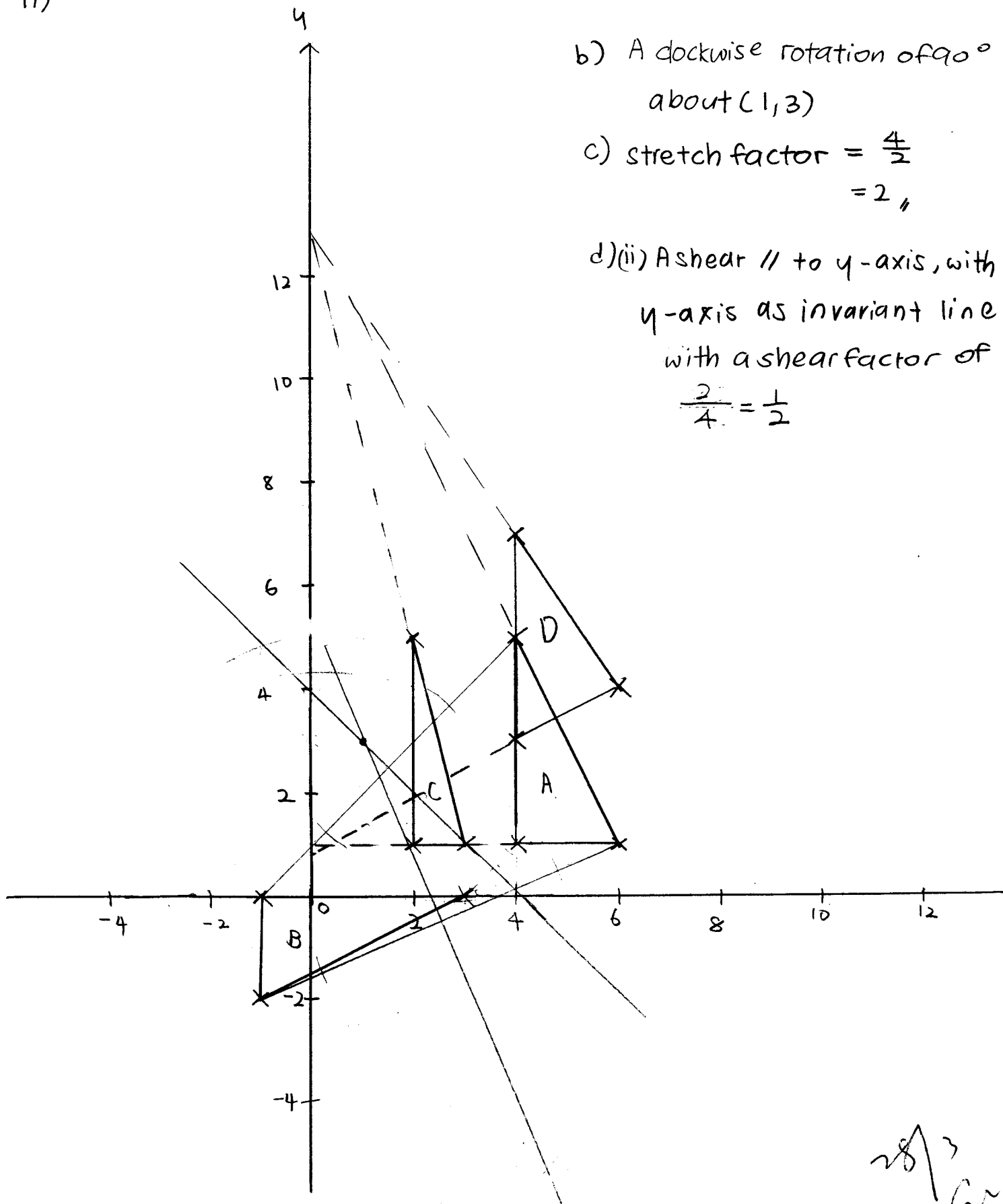
Let $y = 6 - \frac{1}{2}t^2$ so

$$y = \frac{1}{2}t + 1$$



4C1

ii)



b) A clockwise rotation of 90° about $(1, 3)$

c) stretch factor = $\frac{4}{2}$
= 2 //

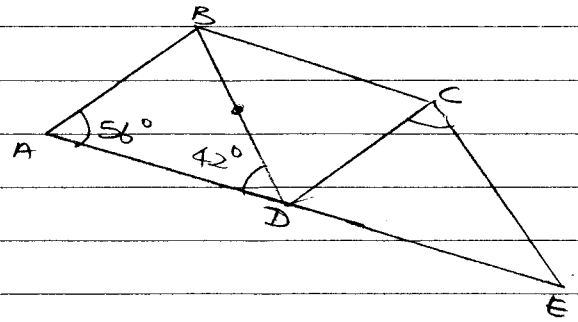
d)(ii) A shear // to y -axis, with y -axis as invariant line with a shear factor of $\frac{2}{4} = \frac{1}{2}$

28/3/92

$$\begin{aligned} 12)(i) \quad \angle ABD &= 180^\circ - 56^\circ - 42^\circ \\ &= 82^\circ \end{aligned}$$

$$\begin{aligned} \angle ADC &= 82^\circ + 42^\circ \\ &= 124^\circ \end{aligned}$$

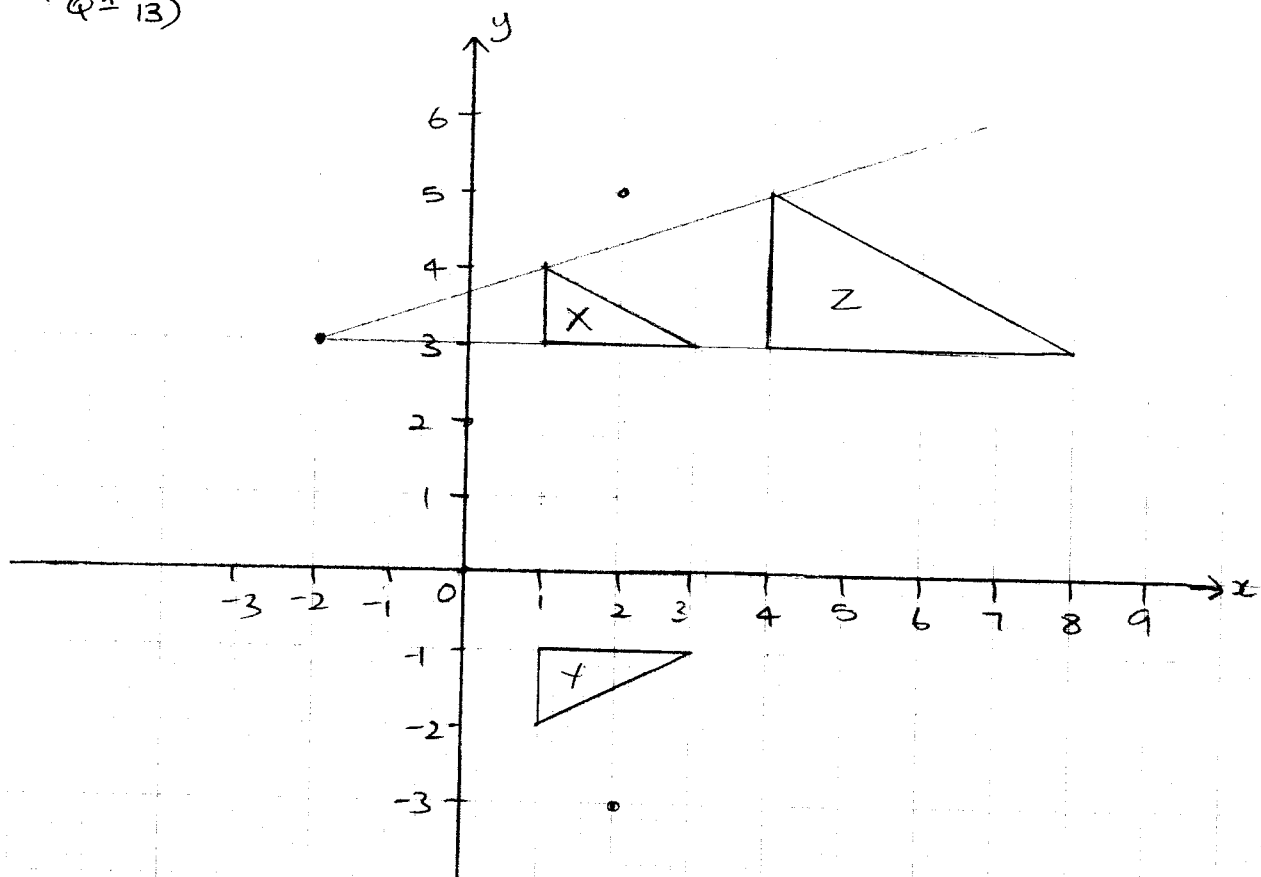
$$\begin{aligned} (ii) \quad \angle ABD &= \angle BDC = \angle DCE \\ &= 82^\circ \end{aligned}$$



(iv) A rotation of 180° about the midpoint of BD.

(iii) Translation along DE

Qⁿ 13)



- (i) A reflection along the line $y=1$
- (ii) Centre of enlargement = $(-2, 3)$
- (iii) the coordinates is $(2, 5)$