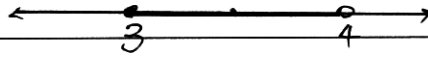


Q4. a) $|x-1| > 3$

$$x < -2$$



b) $0^\circ \leq \theta \leq 360^\circ$

$$\cos \theta - \frac{2}{5} = 0$$

S	A
T	C

c) (i) $a^2 = b^2 + c^2 - 2bc \cos A$

$$a^2 = 5.2^2 + 8.9^2 - 2(5.2)(8.9) \cos 110^\circ$$

$$a^2 = 137.9078$$

$$a = \sqrt{137.9078}$$

$$= 11.74 \text{ (to 2 dp)}$$

(ii) $A = \frac{1}{2} ab \sin C$

$$= \frac{1}{2} (5.2)(8.9) \sin 110^\circ$$

$$= 21.74 \text{ units}^2 \text{ (to 2 dp)}$$

d) (i) $y = 6x - x^2$

$$8 = 6(4) - 16$$

$$8 = 24 - 16$$

$$8 = 8$$

\therefore B lies on $y = 6x - x^2$

(ii) $y = \int_a^b kx \, dx$

$$y = \int_0^4 6x - x^2 \, dx$$

$$= \left[3x^2 - \frac{x^3}{3} \right]_0^4$$

$$= \left[3(16) - \frac{64}{3} \right] - 0$$

$$= 26\frac{2}{3} \text{ units}^2$$

Area