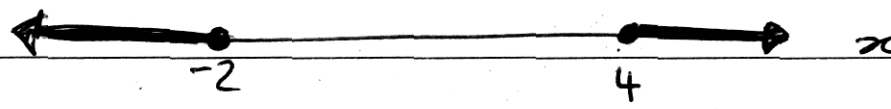
BOARD OF STUDIES
NEW SOUTH WALES

4 (a) $x-1 \geq 3$ OR $x-1 \leq -3$

$x \geq 4$ OR $x \leq -2$



~~4 SR~~

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

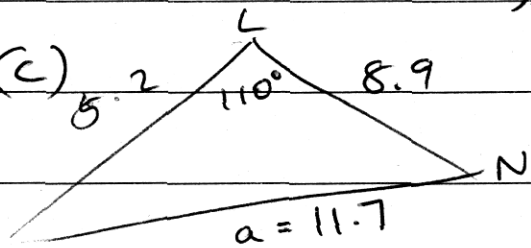
$\theta = 66^\circ$ (nearest °)

$360 - \theta = 293^\circ 34'$

$= 294^\circ$ (nearest °)

$\theta = 66^\circ, 294^\circ$

(c)



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

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

$= 27.04 + 79.21 + 31.65738\ldots$

$MN = \sqrt{137.90738\ldots}$

$MN = 11.7$ (1 one dec. pl.)

$A = \frac{1}{2}\sin ab$ ~~$\frac{1}{b}\sin$~~

~~$\frac{1}{2}\sin(11.7)($~~

$\frac{1}{2}\sin 110^\circ \times 11.7 = 5.49$

$= 5.50$

~~(2 dec pl.)~~

BOARD OF STUDIES
NEW SOUTH WALES

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

$x^2 - 4x = 0$

$x(x-4) = 0$

$x = 0, \quad x = 4.$

$y = 2x$

point 1. (0,0)

obviously the origin, ie not B.

point 2 (4, 8) = B.

(ii) $= \int_0^4 [2x - (6x - x^2)]\, dx$

$= \int_0^4 2x - 6x + x^2\, dx = \left[x^2 - 3x^2 + \frac{x^3}{3}\right]_0^4$

$= \left((4)^2 - 3(4)^2 + \frac{(4)^3}{3}\right) - \left(0^2 - 3(0)^2 + \frac{0^3}{3}\right)$

$= 16 - 48 + \frac{64}{3} \quad - 0$

$= |-10\ 2/3.|$

$= 10\ 2/3$ units^2