. *Integration*

1	a) $x^2 + 5 = 8 - 2x$ $x^2 + 2x - 3 = 0$ $(x-1)(x+3) = 0$ X = 1 or x = -3 $C(-3,14)$ $D(1,6)$ b) $\int_3^1 (x^2 + 5)dx$ $\left[\frac{1}{3}x^3 + 5x\right]_{-3}^{11}$ $\left(\frac{1}{3} + 5\right) - (-9 - 15)$ $5\frac{1}{3} + 24$ $= 29\frac{1}{3} squnits$ c) $\frac{1}{2}(14 + 6) \times 4 = Area$ $\therefore A = 2 \times 20$ $= 40 squnits$ d) $40 - 29\ 1/3$ $= 10\ 2/3\ sq$ units	M_1 A_1 B_1 B_1 M_1 M_1 A_1 M_1 A_1 B_1	**Diagram**
		10	

1. $S_{10} = 100$

$\int_2^5 \frac{(x-1)(x-2)}{x-2} dx$

$= \int_2^5 x - 1 dx$

$= \left[x^2/2 - x \right]_2^5$

2.

$\int (x^2 + 1)\, dx = 2a$

$\left[\frac{x^3}{3} + \frac{x}{1} \right]_0^a = 2a$

$\frac{a^3}{} + \frac{a}{} - 0 = 2a$

$3 \quad 1$

$a^3 + 3a = 6a$

$a^3 = 3a$

$(a^3 - 3a) = 0$

$a(a^2 - 3) = 0$

$a = 0$

or $3 = \pm 1.732$