4. $y = x^2 - 5x + 2$ THICK $\quad y = 2 + 3x - x^2$

POI's

$x^2 - 5x + 2 = 2 + 3x - x^2$

$x^2 + x^2 - 5x - 3x + 2 - 2 = 0$

$2x^2 - 8x = 0$

$2x(x-4) = 0$

$2x = 0 \quad x - 4 = 0$

$x = 0 \quad x = 4$

$$\int_0^4 (2 + 3x - x^2) - (x^2 - 5x + 2)\, dx$$

ABOVE $\quad$ BELOW

$$= \int_0^4 (2 + 3x - x^2 - x^2 + 5x - 2)\, dx$$

$$= \int_0^4 (-2x^2 + 8x)\, dx \quad *$$

$$= \left[-\frac{2}{3}x^3 + \frac{8}{2}x^2 \right]_0^4$$

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

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

$$= \frac{-128}{3} + 64$$

$$= \frac{-128}{3} + \frac{192}{3}$$

$$= \frac{64}{3}$$