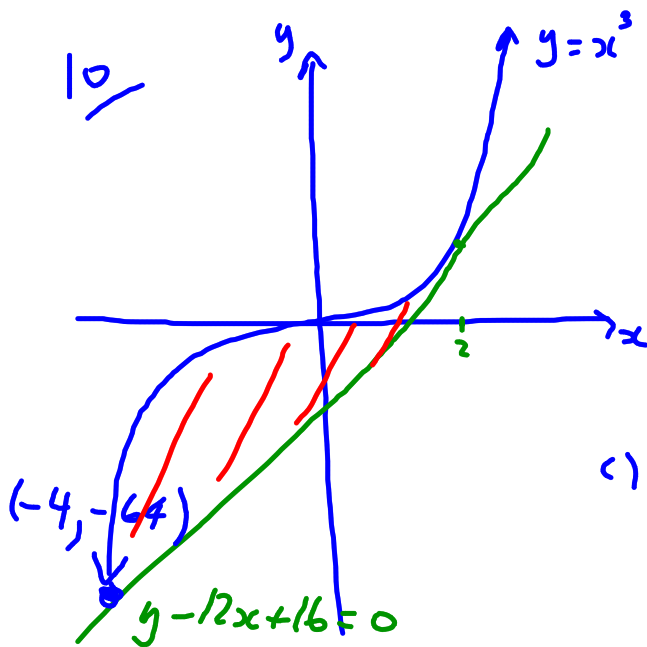


$$\begin{aligned}
 A &= \int_{-2}^2 (8 - 2x^2) dx \\
 &= 4 \int_0^2 (2 - x^2) dx \\
 &= 4 \left[2x - \frac{1}{3}x^3 \right]_0^2 \\
 &= 4 \left\{ 2(2) - \frac{1}{3}(2)^3 - 0 \right\} \\
 &= \underline{\underline{\frac{16}{3} \text{ units}^2}}
 \end{aligned}$$



$$x^3 - (12x - 16) = 0$$

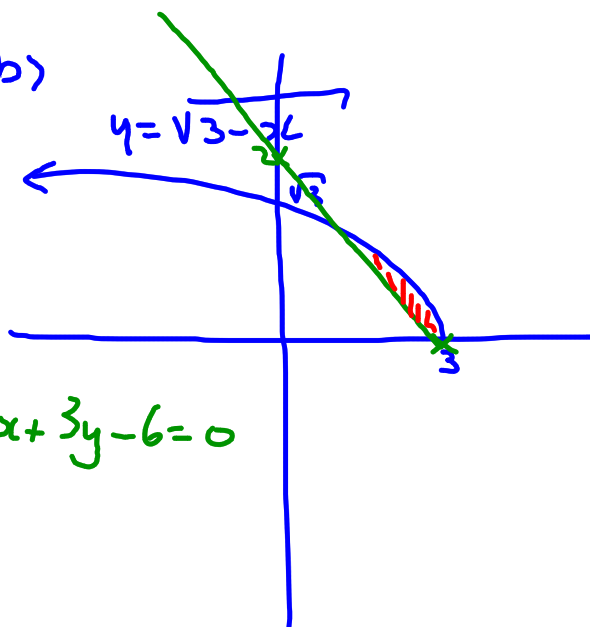
$$x^3 - 12x + 16 = 0$$

$$(x-2)^2(x+4) = 0$$

$$x = 2, x = -4$$

$$\begin{aligned} c) A &= \int_{-4}^2 (x^3 - 12x + 16) dx \\ &= \left[\frac{1}{4}x^4 - 6x^2 + 16x \right]_{-4}^2 \\ &= \left\{ \frac{1}{4}(2)^4 - 6(2)^2 + 16(2) \right\} \\ &\quad - \left\{ \frac{1}{4}(-4)^4 - 6(-4)^2 + 16(-4) \right\} \\ &= \end{aligned}$$

11b)

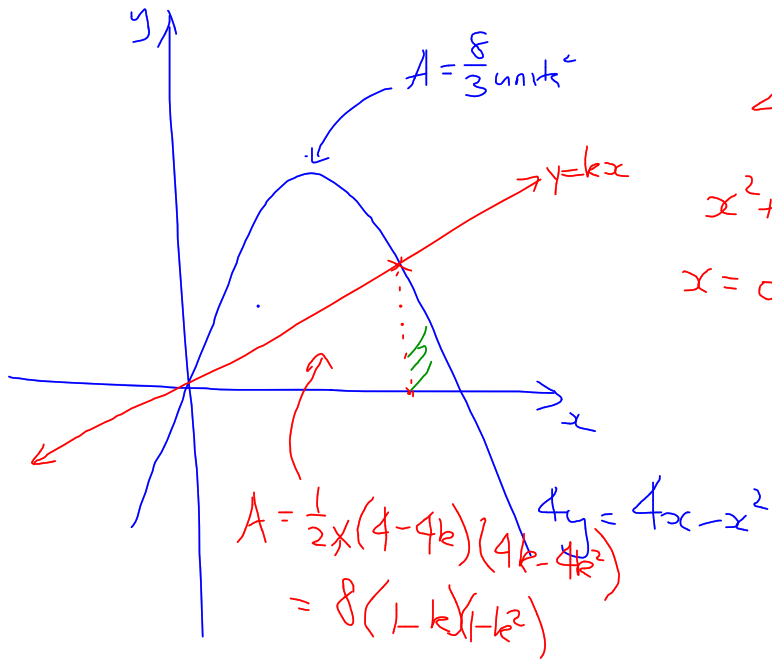


$$\sqrt{3-x} - \left(2 - \frac{2}{3}x\right) = 0$$

$$\sqrt{3-x} = \left(2 - \frac{2}{3}x\right)$$

$$2x + 3y - 6 = 0$$

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$$4kx = 4x - x^2$$
$$x^2 + 4(k-1)x = 0$$
$$x = 0 \text{ or } x = 4 - 4k$$

$$\int_0^{4-4k} \left(x - \frac{1}{4}x^2 - kx \right) dx = \frac{4}{3}$$

$$\left[\frac{1}{2}(1-k)x^2 - \frac{1}{12}x^3 \right]_0^{4-4k} = \frac{4}{3}$$

$$\frac{1}{2}(1-k)(4-4k)^2 - \frac{1}{12}(4-4k)^3 = \frac{4}{3}$$

$$8(1-k)^3 - \frac{16}{3}(1-k)^3 = \frac{4}{3}$$

$$\frac{8}{3}(1-k)^3 = \frac{4}{3}$$

$$(1-k)^3 = \frac{1}{2}$$

$$1-k = \sqrt[3]{\frac{1}{2}}$$

$$k = 1 - \sqrt[3]{\frac{1}{2}}$$

$$\begin{aligned} A &= \int_{4-4k}^4 \left(x - \frac{1}{4}x^2\right) dx \\ &= \left[\frac{1}{2}x^2 - \frac{1}{12}x^3 \right]_{4-4k}^4 \\ &= \frac{8}{3} - \frac{1}{2}(4-4k)^2 - \frac{1}{12}(4-4k)^3 \\ &= \frac{8}{3} - 8(1-k)^2 - \frac{8}{3}(1-k)^3 \end{aligned}$$