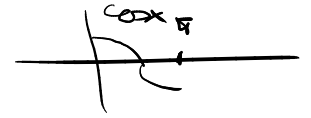


Applications of \int

$\sin x$



$$\int_a^b f(x) dx$$



$$\int_0^{\pi} \sin x dx = [-\cos x]_0^{\pi} = -\cos \pi - (-\cos 0) = -(-1) + 1 = 2$$

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

$$g = -x^2 - 2x + 2$$

x: on f & on g

$$\int [g - f]$$

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

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

$$x_{1,2} = \frac{-3 \pm \sqrt{9 + 40}}{4}$$

$$\int_{-2.5}^1 -x^2 - 2x + 2 - (x^2 + x - 3) dx =$$

$$= \int_{-2.5}^1 -2x^2 - 3x + 5 dx$$

$$= \int_{-2.5}^1 -2x^2 - 3x + 5 dx = \left[-2 \frac{x^3}{3} - 3 \frac{x^2}{2} + 5x \right]_{-2.5}^1$$

$$= \left(\frac{1}{3} - \frac{9}{2} + 5 \right) - \left(\frac{250}{3} - \frac{75}{2} - \frac{25}{2} \right) = \frac{343}{24} \text{ :D}$$