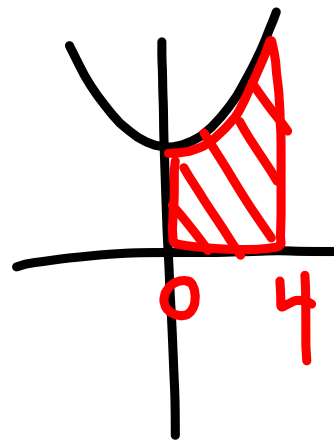


Definite Integral

$$F(x) = 2x^2 + 3$$



area under the
Curve from $x=0$
to $x=4$

$$\int_0^4 2x^2 + 3x \, dx = \frac{2x^3}{3} + \frac{3x^1}{1} + C$$
$$= \frac{2}{3}x^3 + 3x + C \Big|_0^4$$

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

$$\left[\frac{2}{3}(64) + 12 \right] - [0] = \boxed{54.6\bar{6}}$$

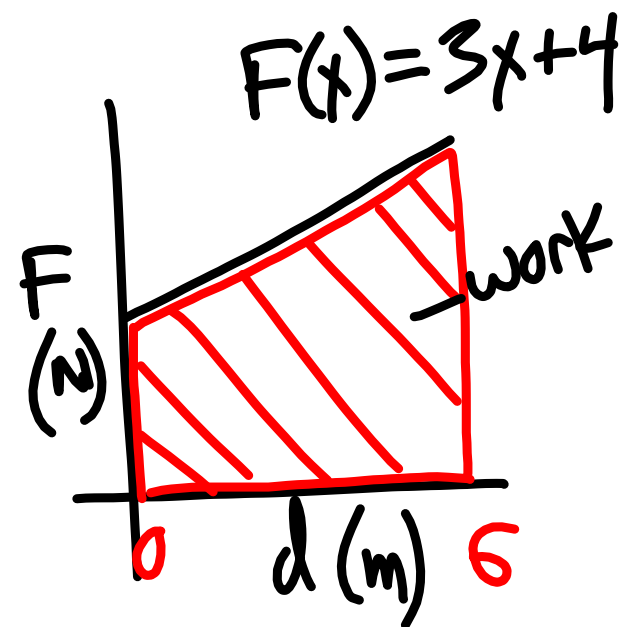
Ex: $\text{work} = F \times d$

N·m

$$W = \int_0^6 (3x+4) dx =$$

$$\frac{3x^2}{2} + \frac{4x^1}{1} + C$$

$$\left. \frac{3}{2}x^2 + 4x + C \right|_0^6$$



$$\left[\frac{3}{2}(6)^2 + 4(6) + \cancel{C} \right] - \left[\cancel{\frac{3}{2}}(0)^2 + \cancel{4}(0) + \cancel{C} \right]$$
$$\left[54 + 24 \right] - \left[0 \right] = \boxed{78 \text{ N}\cdot\text{m}}$$