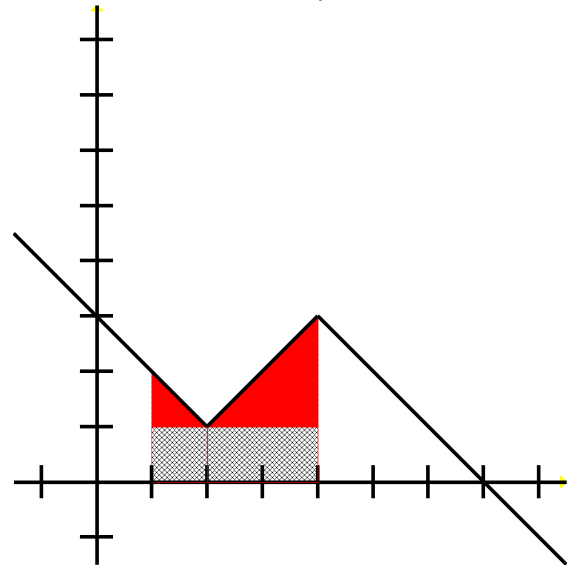


1) Use the graph of $y = f(x)$ to the right and geometry to find the **exact** value of the expression below.

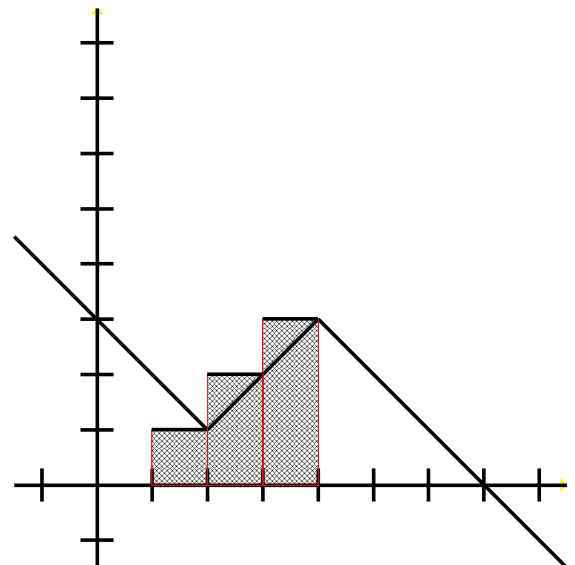
$$\int_1^4 f(x) dx$$

$$1 \cdot 1 + \frac{1}{2} \cdot 1 \cdot 1 + 2 \cdot 1 + \frac{1}{2} \cdot 2 \cdot 2 = 5.5$$



2) Use the graph above to find the **approximate** area, using a right Riemann sum with 3 rectangles.

$$1 \cdot 1 + 1 \cdot 2 + 1 \cdot 3 = 6$$



3) Find the integral below.

$$\int 4x^3 dx = 4 \int x^3 dx = 4 \frac{x^4}{4} + C = x^4 + C$$

4) Find the integral below.

$$\int x(2x^2 + 3)^5 dx = \frac{1}{4} \int u^5 du = \frac{1}{4} \cdot \frac{u^6}{6} + C = \frac{(2x^2 + 3)^6}{24} + C$$

$$u = 2x^2 + 3$$
$$du = 4x dx$$