

$$f(x) = 4x^2 - 5x + 2$$

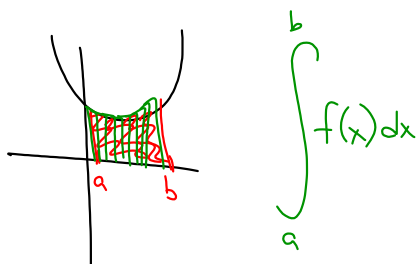
$$f'(x) = 8x - 5$$

$$\int 8x - 5 dx$$

$$\frac{8x^2}{2} - \frac{5x}{1} + C = 4x^2 - 5x + C$$

$$\int 5x^2 - 3x + 2 dx$$

$$\frac{5x^3}{3} - \frac{3x^2}{2} + 2x + C$$



$$\int_2^5 4x^2 dx = \left. \frac{4x^3}{3} + C \right|_2^5$$

$$= \frac{4(5)^3}{3} + C - \left[\frac{4(2)^3}{3} + C \right]$$

$$\frac{500}{3} + C - \frac{32}{3} - C = \frac{468}{3} = 156$$

$$\int_5^2 4x^2 dx = - \int_2^5 4x^2 dx$$

$$-4 \int_2^5 x^2 dx = \frac{x^3}{3} \rightarrow -4 \left(\frac{5^3}{3} - \frac{2^3}{3} \right) = -156$$