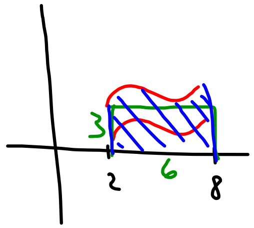
$\int_2^8 f(x)\,dx = 10$

$$\int_2^8 f(x) - 3\,dx = 7$$

Not true



$$6\int_2^8 f(x)\,dx - \int_2^8 3\,dx$$

$$6(10) - 3x\Big|_2^8$$

Original question

$$\int_2^8 6f(x) - 3\,dx$$

$$6\int_2^8 f(x)\,dx - \int_2^8 3\,dx$$

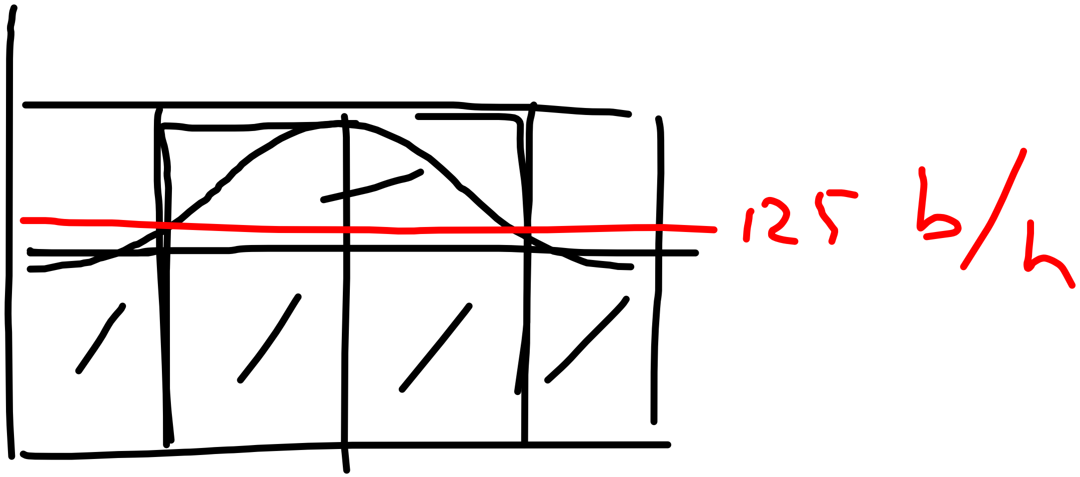
$$60 - 18 = 42$$

$$\int_{-1}^3 3+4x\,dx = 3x+2x^2\Big|_{-1}^3$$

$$= 3(3)+2(3^2)-[3(-1)+2(-1)^2]$$

$$= 9+18-(-1)$$

$$= 28$$



Estimate

$$\frac{3000 \text{ barrels}}{24 \text{ hrs}} = 125 \text{ barrels/hr.}$$

Suppose

$$\int_2^5 f(x)\,dx = 3$$

Easy

$$\int_2^5 3f(x) + 2\,dx$$

$$3\int_2^5 f(x)\,dx + \int_2^5 2\,dx$$

$$3(3) + 2x\Big|_2^5$$

$$9 + (10 - 4)$$

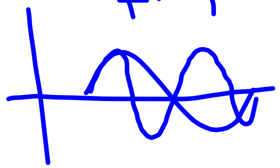
$$9 + 6$$

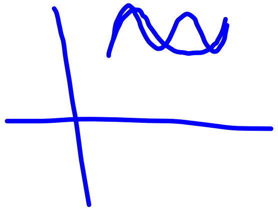
$$15.$$

Harder

$$\int_2^5 f(2x) - 1\,dx$$

$f(x)$





$$\int \tan^2\theta \, d\theta = \int \sec^2\theta - 1 \, d\theta$$

$$= \tan\theta - \theta + C$$

$$\tan^2\theta = \sec^2\theta - 1$$

$$\frac{\sin^2\theta}{\cos^2\theta} + \frac{\cos^2\theta}{\cos^2\theta} = \frac{1}{\cos^2\theta}$$

$$\frac{d^2y}{dx^2} = 2 - 6x, \quad y(0) = 1, \quad \boxed{y'(0) = 4}$$

$x^2 - x^3 + 4x + 1$

y' or $\frac{dy}{dx}$ $= \int 2 - 6x \, dx = 2x - 3x^2 + c$

$4 = 2(0) - 3(0)^2 + c$

$c = 4$

$y = \int 2x - 3x^2 + 4 \, dx$

$x^2 - x^3 + 4x + c$

$1 = (0)^2 - (0)^3 + 4(0) + c$

$c = 1$

$$\int (x+2)^5 \, dx$$

Let $u = x+2$

$$\frac{du}{dx} = 1$$

$$du = dx$$

$$\int u^5 \, du$$

$$\frac{u^6}{6} + C$$

$$\frac{(x+2)^6}{6} + C$$

$$\int \underbrace{\sqrt{4x-1}}_{u}\ \underbrace{dx}_{\frac{1}{4}du}$$

$$\int u^{\frac{1}{2}} \cdot \frac{1}{4}\,du$$

$$\frac{1}{4}\int u^{\frac{1}{2}}\,du$$

Let $u = 4x-1$

$$\frac{du}{dx} = 4$$

$$du = 4\,dx$$

or

$$dx = \frac{1}{4}\,du$$