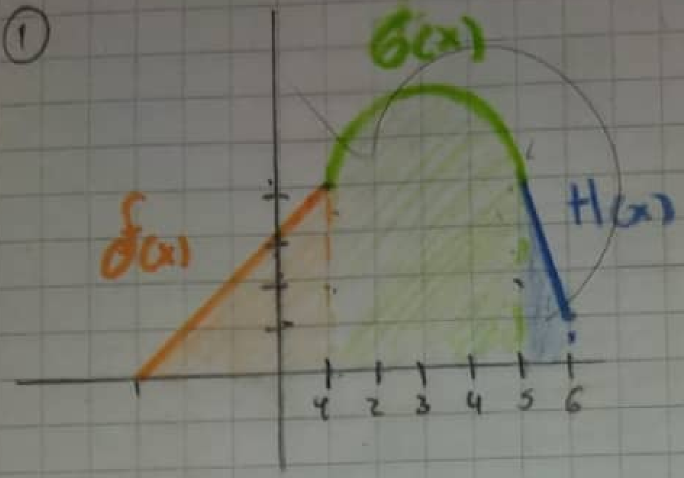
①



$M = \frac{1-4}{6-5}$

$M = \frac{-3}{1}$

$y - y_1 = (-3)(x - x_1)$

$y - 1 = -3x + 18$

$y = -3x + 19$

$f(x) = x + 3$

$G(x) = \sqrt{4 - (x-3)^2} + 4$

$H(x) = -3x + 19$

$$\left(\int_{-3}^{1} f(x)\,dx\right) + \left(\int_{1}^{5} G(x)\,dx\right) + \left(\int_{5}^{6} H(x)\,dx\right)$$

$$\int_{-3}^{1} (x+3)\,dx + \int_{1}^{5} \sqrt{4-(x-3)^2} + 4\,dx + \int_{5}^{6} -3x + 19\,dx$$

$$\left.\frac{x^2}{2} + 3x\right| + \left(\int_{1}^{5} \sqrt{4-(x-3)^2}\,dx\right) + \left. 4x \right|_{5}^{1} + \left.\left(\frac{(-3x)^2}{2} + 19x\right)\right|_{5}^{6}$$

$$(8) + \left\{\left.\left(\sqrt{1 - \frac{(x-3)^2}{4}}\,(x-3) + 2\arcsin\left(\frac{x-3}{2}\right)\right)\right|^{5}\right. + 16 + 2,5$$

$8 + 6,2831 + 16 + 2,5$

$f(x) + G(x) + H(x) = 32,7831$

Escaneado con CamScanner

2

1. $\int_1^3 g(x)\,dx = -5$

2. $\int_1^7 f(x)\,dx = 3$

3. $\int_3^7 g(x)\,dx = -3$

A) $\int_1^7 5\left(f(x) - \frac{1}{2}g(x)\right) dx$

$\int_1^7 \left(5f(x) - \frac{5}{2}g(x)\right) dx$

$5\int_1^7 f(x)\,dx - \frac{5}{2}\int_1^7 g(x)\,dx$

$(5)(3) - \frac{5}{2}\left(\int_1^3 g(x)\,dx + \int_3^7 g(x)\,dx\right)$

$15 - \left(\frac{-25}{2} + \frac{-15}{2}\right)$

$15 - \left(\frac{-40}{2}\right)$

$15 + 20$

35

(B) $\int_1^7 (-2f(x) + 6g(x))dx$

$-2\int_1^7 f(x)dx + 6\int_1^7 g(x)\ dx$

$-2(3) + 6\left(\int_1^3 g(x)dx + \int_3^7 g(x)dx\right)$

$-6 + 6((-5) + (-3))$

$-6 + 6(-2)$

$-6 - 12$

-18

$-6 + 6 \left(\ldots \right)$

$-6 + 6(-2)$

$-6 - 12$

-18

Ⓒ $\int_{1}^{7} 3(f(x) + g(x))\, dx$

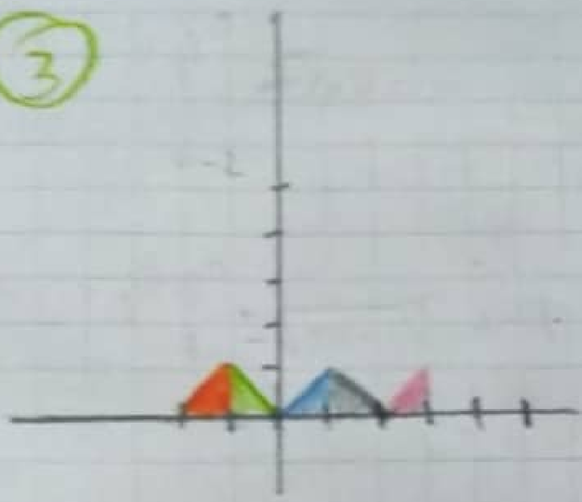
$(3) \cdot \int_{1}^{7} (f(x) + g(x))\, dx$

$(3) \cdot \left(\int_{1}^{7} f(x)\,dx + \left(\int_{1}^{3} g(x)\,dx + \int_{3}^{7} g(x)\,dx \right) \right)$

$(3) \left((3) + (-5) + (-3) \right)$

15

③



$f(x) = x-2$

$G(x) = -x$

$H(x) = x$

$J(x) = 2-x$

$M(x) = x+2$

$$\int_{-2}^{-1} f(x)\,dx + \int_{-1}^{0} G(x)\,dx + \int_{0}^{1} H(x)\,dx + \int_{1}^{2} J(x)\,dx + \int_{2}^{3} M(x)\,dx$$

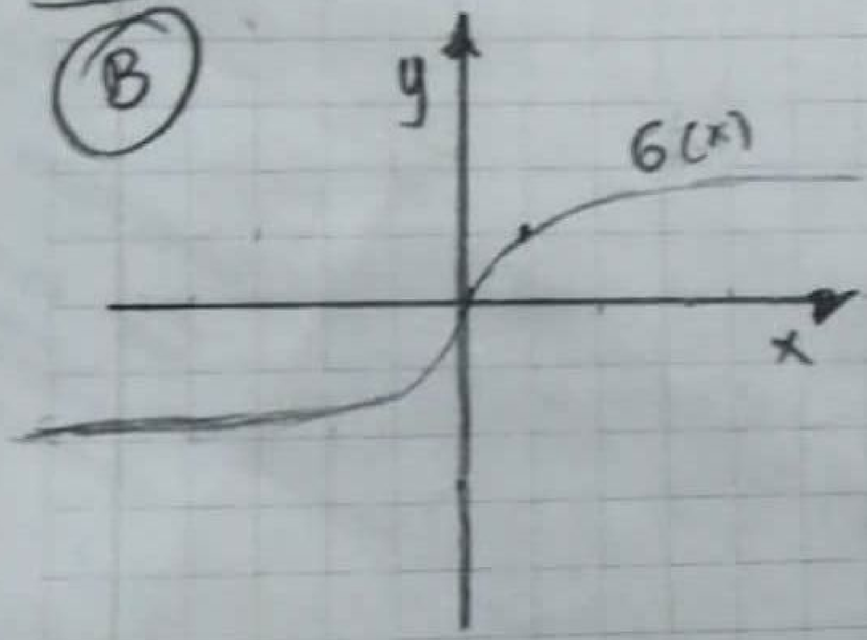
$$\frac{x^2}{2} - 2x \Big|_{-1}^{-2} + \frac{-x^2}{2} \Big|_{-1}^{0} + \frac{x^2}{2} \Big|_{0}^{1} + 2x - \frac{x^2}{2} \Big|_{1}^{2} + \frac{x^2}{2} + 2x \Big|_{2}^{3}$$

$$0{,}5 + 0{,}5 + 0{,}5 + 0{,}5 + 0{,}5$$

$$2{,}5$$

2,5

(B)



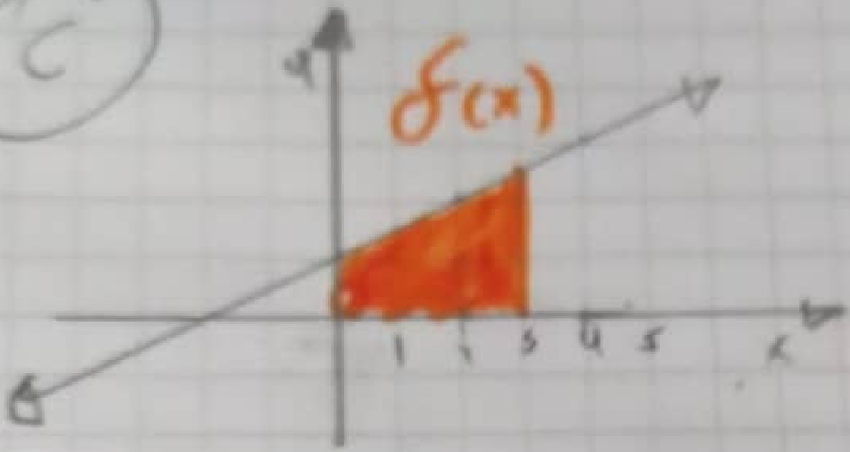
$$\int_0^6 G(x)\,dx$$

$$\int_0^6 (x)^{\frac{1}{3}}\,dx$$

$$\frac{3(x)^{\frac{4}{3}}}{4}\Bigg|_0^6$$

$$\int_0^6 G(x)\,dx \Rightarrow \frac{3(6)^{\frac{4}{3}}}{4} \Rightarrow 8{,}1770$$

(c)



$$f(x) = \frac{1}{2}x + 1$$

$$\int_0^3 f(x)\,dx \iff \int_0^3 \left(\frac{1}{2}x + 1\right) dx$$

$$\frac{x^2}{4} + x \Big|_0^3$$

$$\frac{9}{4} + 3 = \frac{21}{4}$$

④ Ⓐ $\int_{-a}^{a} g(x)\,dx = 0$ Falso

$a = 1$
$G(x) = x^2$

$$\int_{-1}^{1} x^2\,dx$$

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

Ⓑ $\int_{-a}^{a} [f(x) \cdot g(x)]\,dx = 2\int_{0}^{a} f(x) \cdot g(x)\,dx$

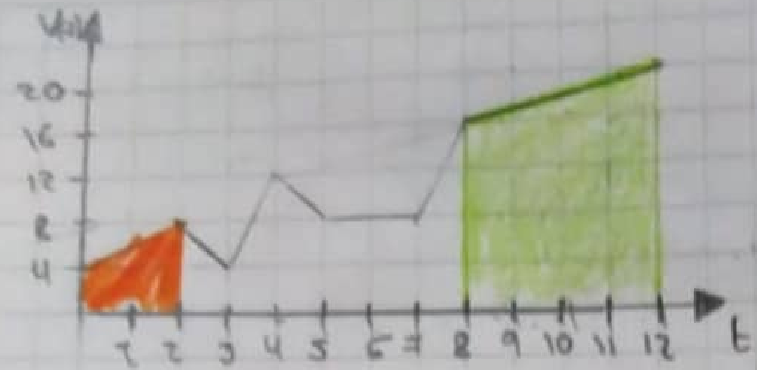
Falso

porque "$[f(x) \cdot g(x)]$ crea otra funsio que puede que sea par, inpar, o ninguna

Ⓒ $\int_{-a}^{0} g(x)\,dx = -\int_{0}^{a} g(x)\,dx$

Verdadero

Por propiedades de integracion si y solo si g(x) es IMpar se puede Hacer



La integral de la velocidas es la distancia Portanto La integral de la funcion es su distancia

$f(x) = 2x + 4$

$G(x) = x + 8$

ⓐ Posicion en sus 2 primeras Hor..

$$\int_0^2 2x+4\,dx$$

$$\frac{2x^2}{2} + 4x \Big|_0^2$$

$$4 + 8 = 12$$

$$\int_0^2 f(x)\,dx = 12.$$