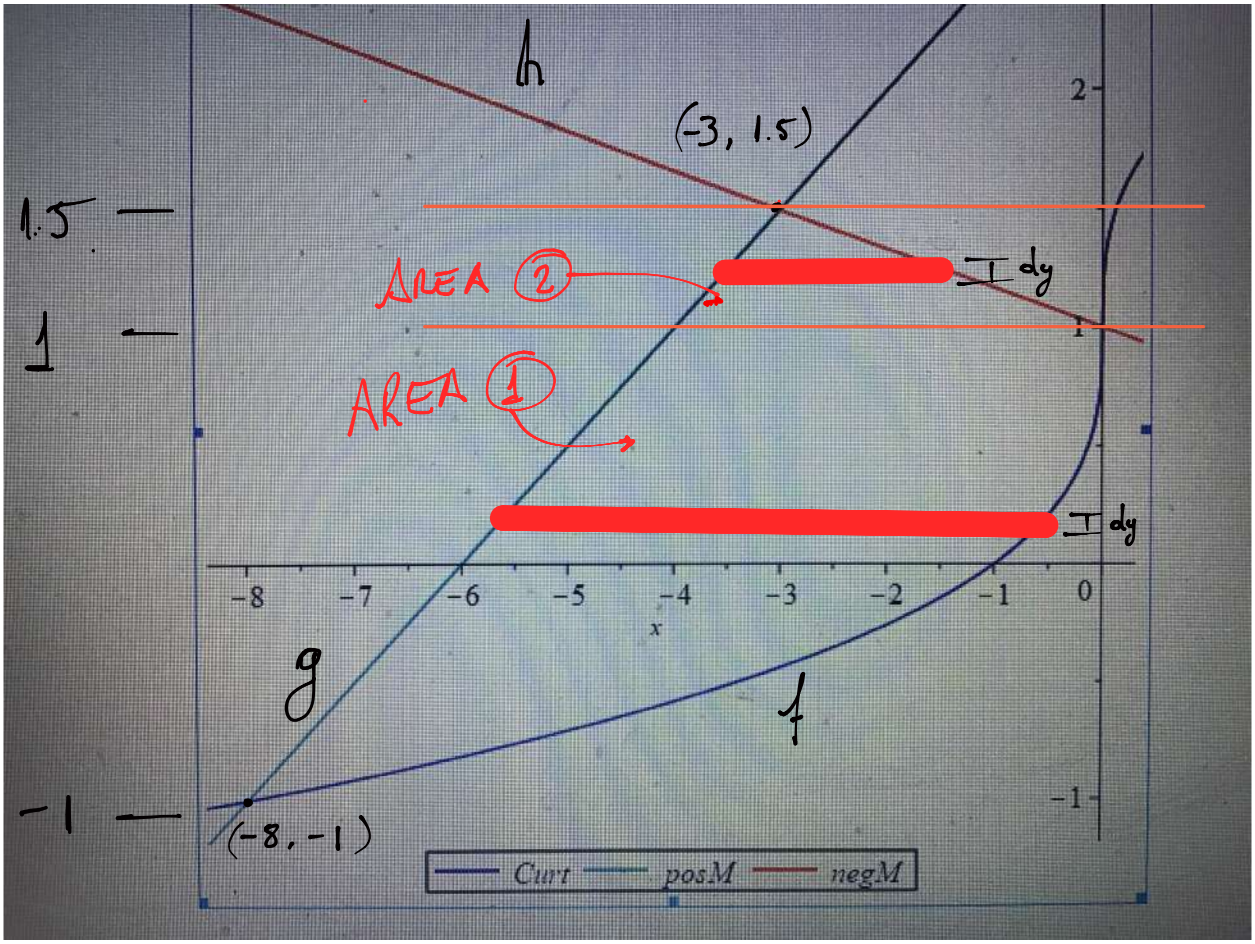


Area 1 : $\int_{-1}^{1} [f(y) - g(y)]\, dy$

Area 2 : $\int_{1}^{3/2} [h(y) - g(y)]\, dy$

Area total : Area 1 + Area 2.

RESOLUTION:

$$A_1 = \int_{-1}^{1} \left[(y-1)^3 - (2y-6)\right] \cdot dy$$

$$A_1 = \int_{-1}^{1} (y^3 - 3y^2 + 3y - 1 - 2y + 6)\, dy$$

$$A_1 = \int_{-1}^{1} (y^3 - 3y^2 + y + 5)\, dy$$

$$A_1 = \left[\frac{y^4}{4} - \frac{3y^3}{3} + \frac{y^2}{2} + 5y\right]_{-1}^{1}$$

$$A_1 = \frac{1}{4}\left[1^4-(-1)^4\right] - \left[1^3-(-1)^3\right] + \frac{1}{2}\left[1^2-(-1)^2\right] + 5\left[1-(-1)\right]$$

$$A_1 = \cancel{\frac{1}{4}(1-1)} - (1+1) + \cancel{\frac{1}{2}(1-1)} + 5(1+1)$$

$$A_1 = -2 + 10 = 8 \quad \langle \text{unit} \rangle^2$$

$$A_2 = \int_{1}^{1.5} \left[(-6y+6)-(2y-6)\right] dy$$

$$A_2 = -4 \int_{1}^{1.5} (2y-3)\, dy$$

$$A_2 = -4\left[\frac{2y^2}{2} - 3y\right]\Bigg|_{1}^{3/2}$$

$$A_2 = -4\left[\left(\frac{9}{4}-1\right) - 3\left(\frac{3}{2}-1\right)\right]$$

$$A_2 = -4\left[\left(\frac{9-4}{4}\right) - 3\left(\frac{3-2}{2}\right)\right]$$

$$A_2 = -4\left(\frac{5}{4}\right) - (-4)\cdot 3 \cdot \frac{1}{2}$$

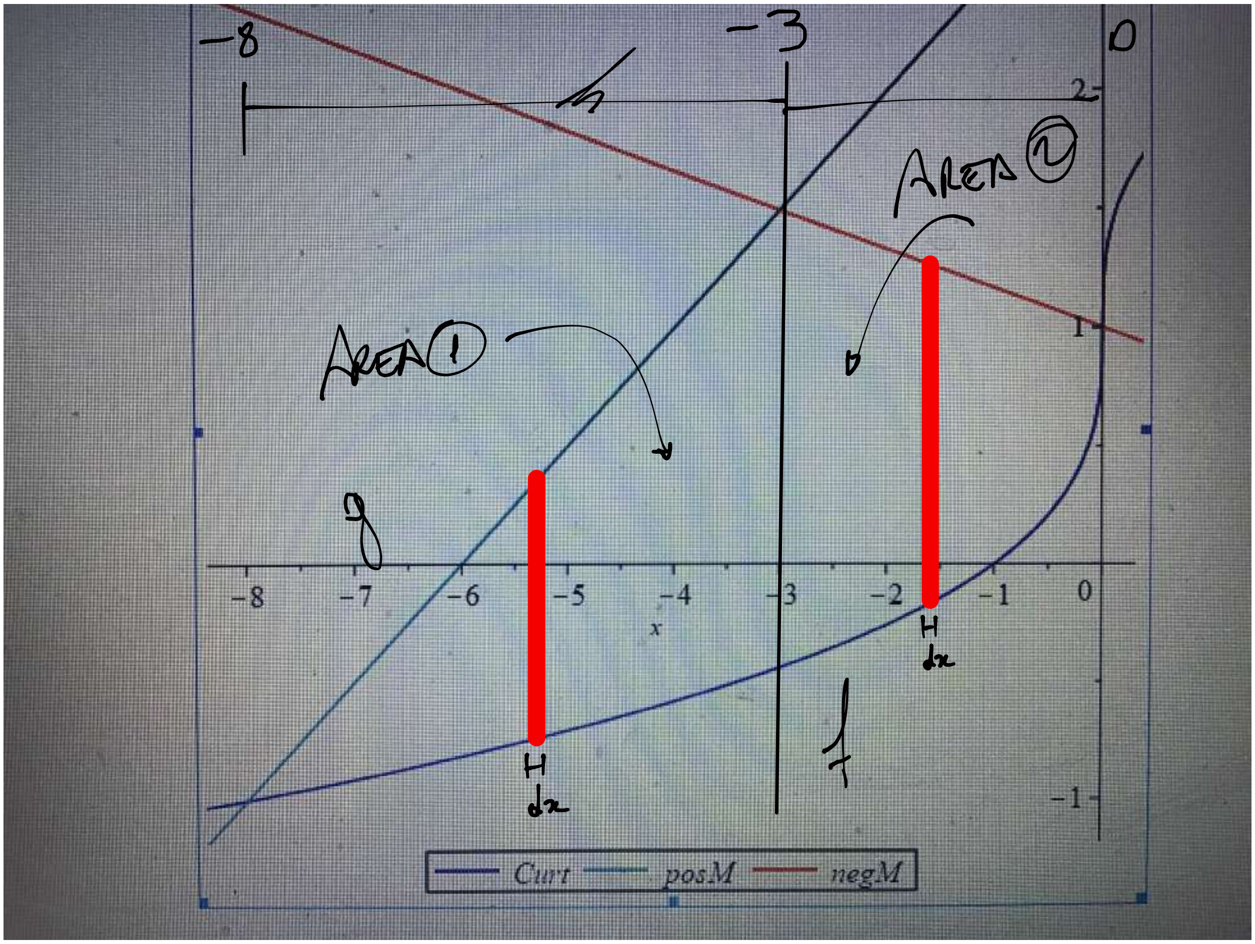
$$A_2 = -5 + 6 = 1 \qquad \langle \text{UNIT} \rangle^2$$

THEREFORE, AREA R IS A_T,

$$A_T = A_1 + A_2$$

$$A_T = 8 + 1$$

$$\boxed{A_T = 9 \ \langle \text{UNIT} \rangle^2}$$



$$A_1 = \int_{-8}^{-3} \left[g(x) - f(x) \right] \cdot dx$$

$$A_2 = \int_{-3}^{0} \left[h(x) - f(x) \right] dx$$

RESOLUTION:

$$A_1 = \int_{-8}^{-3} \left[\left(\frac{X}{2}+3\right) - \left(X^{\frac{1}{3}}+1\right)\right] \cdot dx$$

$$A_1 = \int_{-8}^{-3} \left(\frac{X}{2} - X^{1/3} + 2\right) dx$$

$$A_1 = \left[\frac{1}{2} \cdot \frac{X^2}{2} - \frac{3}{4} X^{\frac{4}{3}} + 2X\right]\Bigg|_{-8}^{-3}$$

$$A_1 = \frac{1}{4}\left[(-3)^2 - (-8)^2\right] - \frac{3}{4}\left[(-3)^{\frac{4}{3}} - (-8)^{4/3}\right] + 2\left[-3 - (-8)\right]$$

$$A_1 = \frac{1}{4}(9-64) - \frac{3}{4}\left(-3 \cdot (-3)^{1/3} - (-8)(-2)\right) + 2(5) \cdot \frac{4}{4}$$

$$A_1 = -\frac{55}{4} + \frac{9}{4}(-3)^{1/3} + \frac{3}{4} \cdot 16 + \frac{1}{4} \cdot 40$$

$$A_1 = \frac{33}{4} - \frac{9(3)^{1/3}}{4} \quad \langle UNIT \rangle^2$$

$$A_2 = \int_{-3}^{0} \left[\left(-\frac{x}{6}+1\right) - \left(x^{1/3}+1\right)\right] dx$$

$$A_2 = -\int_{-3}^{0} \left(\frac{x}{6} + x^{1/3} \right) . dx$$

$$A_2 = -\left(\frac{1}{6} \cdot \frac{x^2}{2} + \frac{3}{4} x^{4/3} \right) \Bigg|_{-3}^{0}$$

$$A_2 = -\left[\frac{1}{12} \cdot \left[0^2 - (-3)^2\right] + \frac{3}{4}\left(0^{4/3} - (-3)^{4/3}\right)\right]$$

$$A_2 = -\left[-\frac{1}{12} \cdot 9 + \frac{3}{4} \cdot 3(-3)^{1/3}\right]$$

$$A_2 = \frac{3}{4} + \frac{9 \cdot (3)^{1/3}}{4}$$

THEREFORE

$$A_T = A_1 + A_2$$

$$A_T = \frac{33}{4} - \frac{9(3)^{1/3}}{4} + \frac{3}{4} + \frac{9(3)^{1/3}}{4}$$

$$A_T = \frac{36}{4}$$

$$\boxed{A_T = 9 \quad \langle \text{unit} \rangle^2}$$