

1. tentukan luas daerah yang dibatasi oleh $y = x^3 - x^2 - 6x$ dan sumbu x diantara $x = -2$ dan $x = -3$

2. tentukan luas daerah yang dibatasi oleh kurva
a. $y = 2 - x^2$ dan $y = x$

1. $y = x^3 - x^2 - 6x$

x	-3	-2	0	1	2	3	4
y	-18	0	0	-6	-8	0	24

$$\int_{-3}^{-2} (x^3 - x^2 - 6x) dx$$

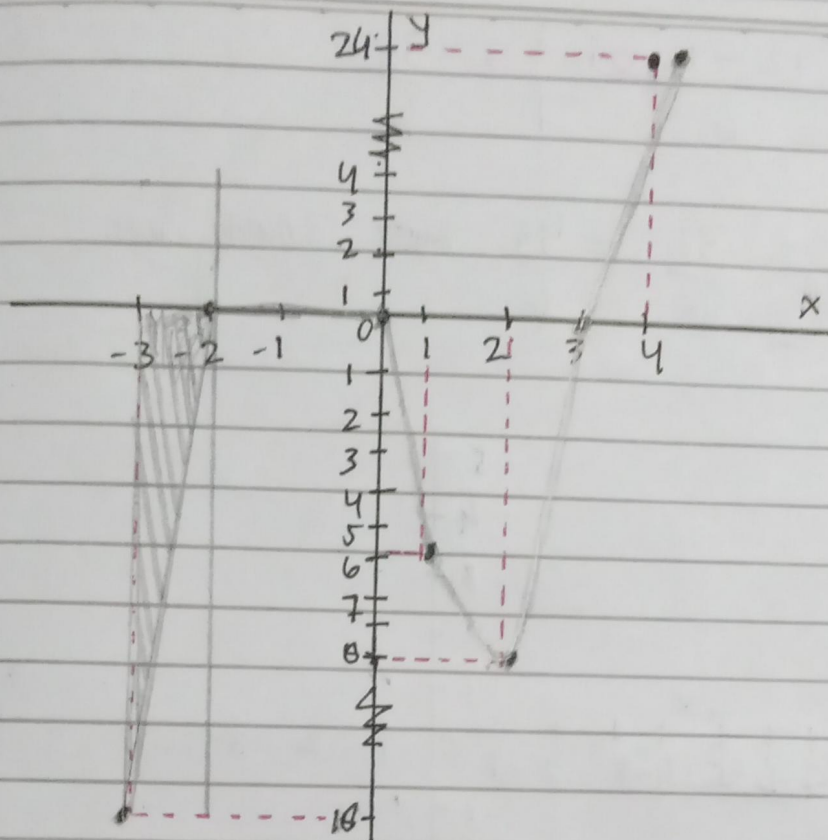
$$\frac{1}{4} x^4 - \frac{1}{3} x^3 - 3x^2$$

$$= \left(\frac{1}{4} (-2)^4 - \frac{1}{3} (-2)^3 - 3(-2)^2 \right) - \left(\frac{1}{4} (-3)^4 - \frac{1}{3} (-3)^3 - 3(-3)^2 \right)$$

$$= \left(4 + \frac{8}{3} - 12 \right) - \left(\frac{81}{4} + 9 - 27 \right)$$

$$= \frac{20}{3} - \frac{27}{4} = 80 + 8$$

$$= \frac{161}{12}$$



② $a \cdot y = 2 - x^2$ dan $y = x$

x	0	1	2	3	
y	2	1	-2	-7	

$$\begin{aligned}
 2 - x^2 &= x \\
 (2 - x^2 - x = 0) - 1 \\
 -2 + x^2 + x &= 0 \\
 x^2 + x - 2 &= 0
 \end{aligned}$$

$$L = \int_{-2}^1 (2 - x^2 - x) dx$$

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

$$\begin{aligned}
 &= \left(2 \cdot 1 - \frac{1}{3} \cdot 1 \cdot 1 \cdot 1 - \frac{1}{2} \cdot 1 \right) - \left(2 \cdot (-2) - \frac{1}{3}(-2)^3 - \frac{1}{2} \cdot (-2)^2 \right) \\
 &= \left(2 \cdot \frac{1}{3} - \frac{1}{2} \right) - \left(-4 + \frac{8}{3} - 2 \right)
 \end{aligned}$$

Date : _____

$$= \left(\frac{12 - 2 - 3}{6} \right) = \frac{36}{6}$$

$$= \frac{7}{6} + \frac{36}{6} = \frac{43}{6} \text{ ~~36~~ satuan Luas.}$$

