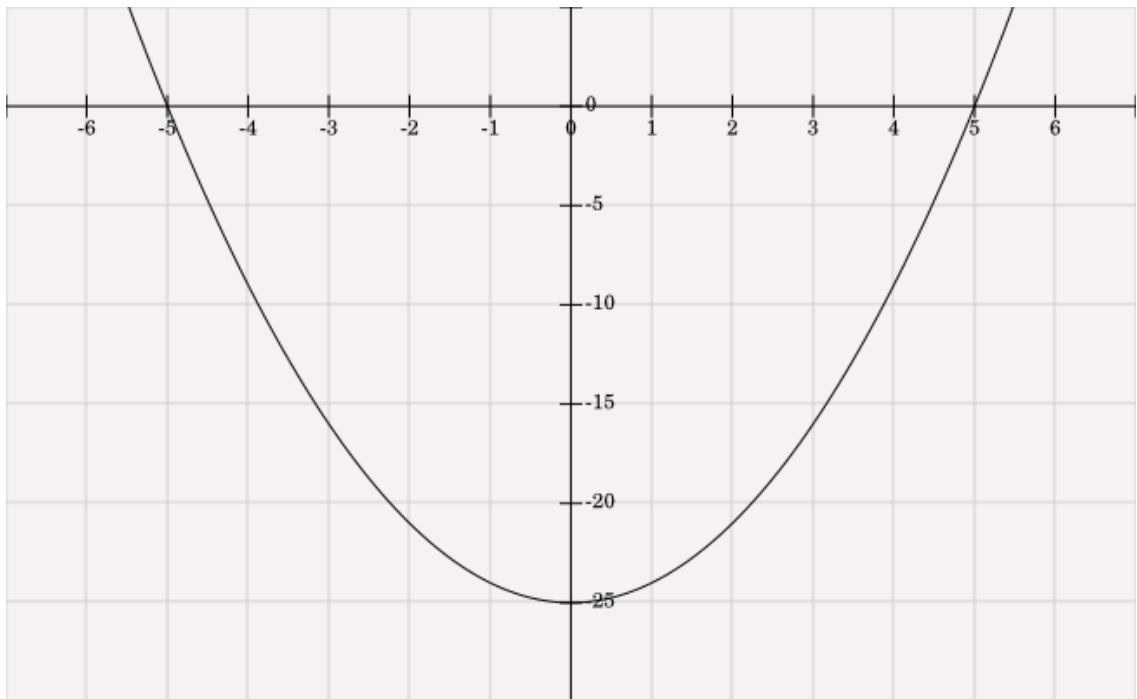


Find the area enclosed between the x-axis and the curve, if  $y = x^2 - 25$  for  $x$  less than or equal to  $x$  less than or equal to 5.

- a. 50
- b. (-500)
- c. 500
- d. 25



The area A is given by the integral from  $x = -5$  to  $x = 5$  of the curve  $y = x^2 - 5$ :

$$\begin{aligned}
 A &= \int_{-5}^5 (x^2 - 25) dx = \left( \frac{x^3}{3} - 25x \right) \Big|_{-5}^5 \\
 &= \left( \left( \frac{5^3}{3} - 25 * 5 \right) - \left( \frac{(-5)^3}{3} - 25 * (-5) \right) \right) = -2 * 125 * \frac{2}{3} \\
 &= -\frac{500}{3}
 \end{aligned}$$

and area A is below the x-axis; and, as we see, the sign of the value A is negative.

The actual value of the area is  $+\frac{500}{3}$

Answer:  $\frac{500}{3}$