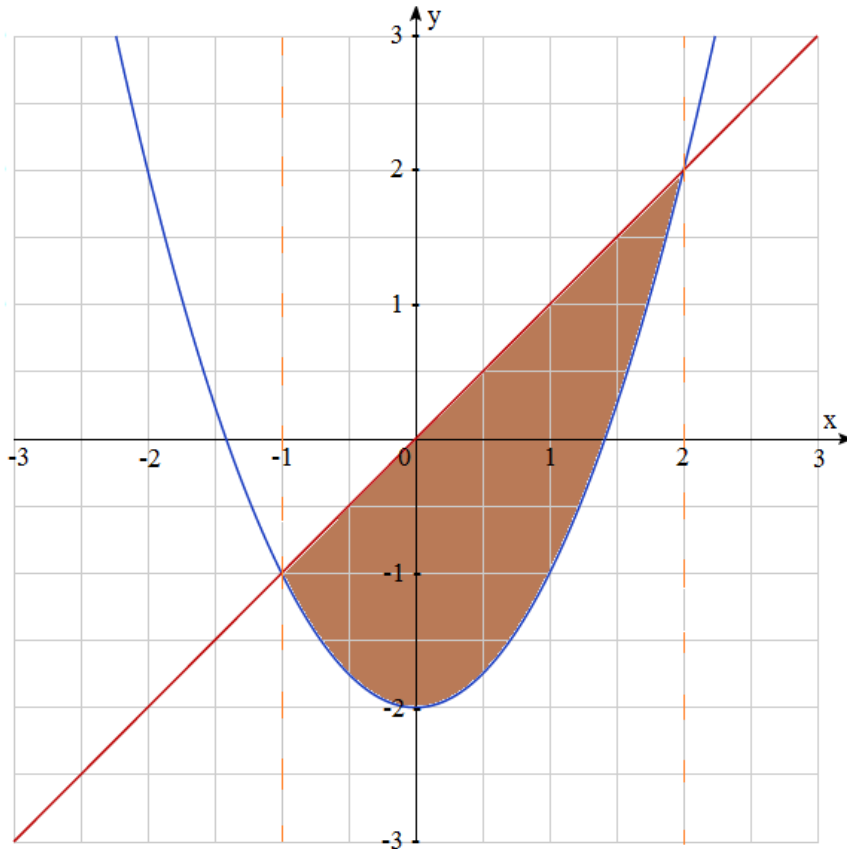


### Answer on Question #66471, Math / Calculus

A certain lot is in the shape of a parabola bounded by a slant line. The parabola is defined by the equation  $y = x^2 - 2$  and the line at  $y = x$ . If the lot is bounded by the coordinates at  $x = 2$  and  $x = -1$  then what is the area of the lot?

Solution



Find the area of the lot

$$\begin{aligned} \text{Area} &= \int_{-1}^2 (x - (x^2 - 2)) dx = \left( \frac{x^2}{2} - \frac{x^3}{3} + 2x \right) \Big|_{-1}^2 = \\ &= \left( \frac{(2)^2}{2} - \frac{(2)^3}{3} + 2(2) \right) - \left( \frac{(-1)^2}{2} - \frac{(-1)^3}{3} + 2(-1) \right) = \frac{8}{3} \text{ (units}^2\text{)} \end{aligned}$$

Answer: the area of the lot equals  $\frac{8}{3}$  square units.

Answer provided by <https://www.AssignmentExpert.com>