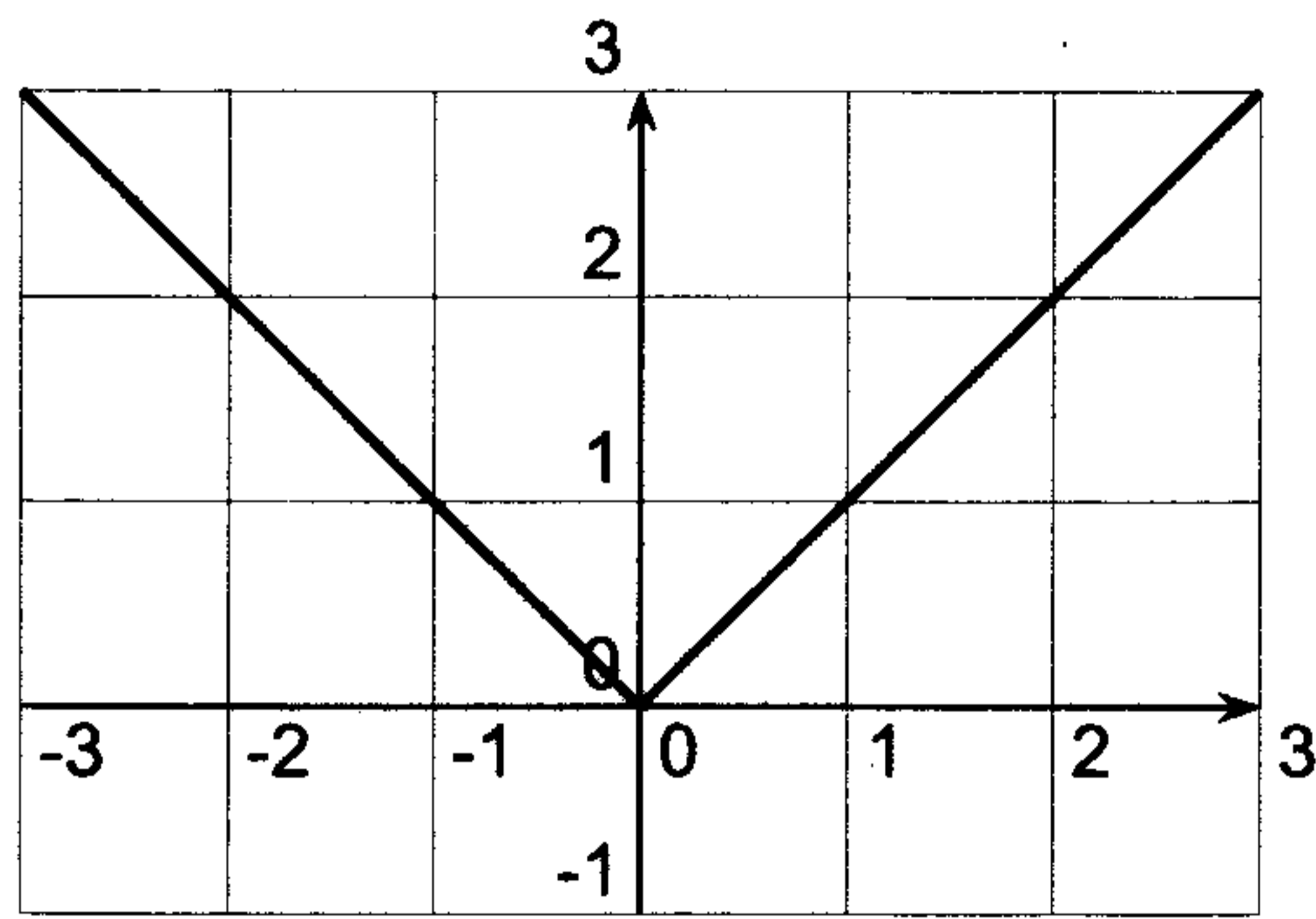


5. Let  $f(x) = |x|$ .

(a) (4 points) Find  $\int_{-2}^1 f(x) dx$  using geometry (i.e., areas). Show your work on the graph below and circle your numerical answer.



(b) (4 points) Find a formula for an antiderivative of  $f(x)$ , given the piecewise formula

$$f(x) = |x| = \begin{cases} x, & \text{if } x \geq 0 \\ -x, & \text{if } x < 0. \end{cases}$$

(c) (4 points) Using the Fundamental Theorem and your answer to (5b), compute  $\int_{-2}^1 f(x) dx$ .