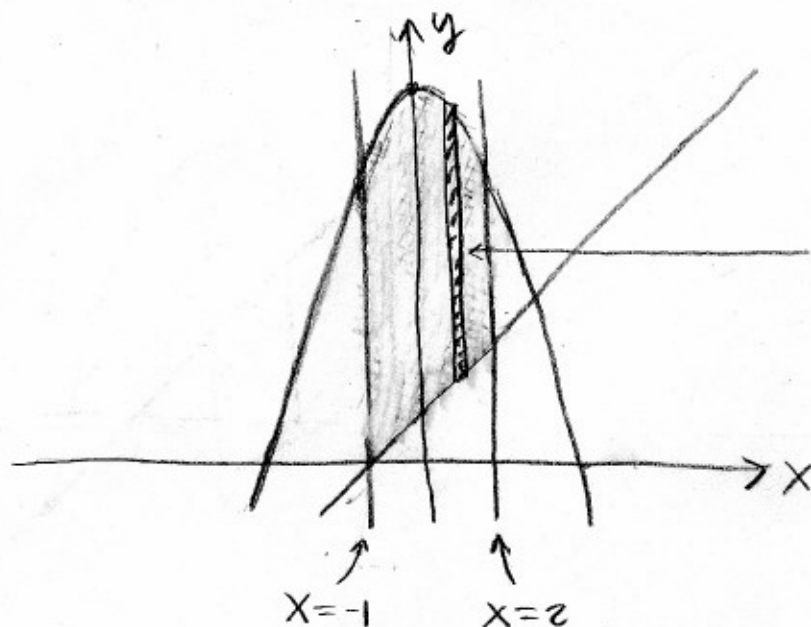


Homework Quiz : Areas §6.1 # 5 2/9/06

Find area bounded by $y = x+1$, $y = 9-x^2$, $x = -1$, $x = 2$



$$\begin{aligned} y_T - y_B &= \\ &= 9 - x^2 - (x + 1) \\ &= 8 - x^2 - x \end{aligned}$$

$$dA = (y_T - y_B) dx = (8 - x^2 - x) dx$$

picture indicates can use same rectangle set-up over whole region $-1 \leq x \leq 2$ (as opposed to say # 15 of §6.1, where we had to break it up into cases.)

$$A = \int_{-1}^2 (8 - x^2 - x) dx$$

$$= \left(8x - \frac{1}{3}x^3 - \frac{1}{2}x^2 \right) \Big|_{-1}^2$$

$$= 8(2) - \frac{1}{3}(8) - \frac{1}{2}(4) + 8 - \frac{1}{3} + \frac{1}{2}$$

$$= 16 - \frac{8}{3} - 2 + 8 - \frac{1}{3} + \frac{1}{2}$$

$$= 19 + \frac{1}{2}$$

$$= \boxed{\frac{39}{2}}$$