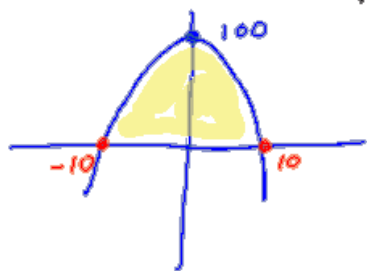


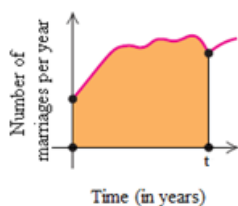
Find the area between the curve and the x-axis over the indicated interval.

$$y = 100 - x^2; [-10, 10]$$



$$\begin{aligned} A &= \int_{-10}^{10} (100 - x^2) dx \\ &= 2 \int_0^{10} (100 - x^2) dx \\ &= 2 \left[100x - \frac{x^3}{3} \right]_0^{10} \\ &= 2 \left[1000 - \frac{1000}{3} \right] \\ &= 2 \left[\frac{3000}{3} - \frac{1000}{3} \right] \\ &= 2 \left[\frac{2000}{3} \right] = \frac{4000}{3} \end{aligned}$$

Explain what the shaded area represents.



$$\frac{\text{marriages}}{\text{year}} \cdot \frac{\text{year}}{1} = \text{\# of marriages}$$

Evaluate.

$$\begin{aligned} \int_2^5 (5x^3 + 9) dx &= \left. \frac{5x^4}{4} + 9x \right|_2^5 = \\ &= \left[\frac{5(5)^4}{4} + 9(5) \right] - \left[\frac{5(2)^4}{4} + 9(2) \right] = \\ &= \left[\frac{3125}{4} + \frac{180}{4} \right] - \left[\frac{80}{4} + \frac{72}{4} \right] = \\ &= \frac{3305}{4} - \frac{152}{4} = \frac{3153}{4} \end{aligned}$$