

200711140844 Gallons in a 1 foot deep square mile

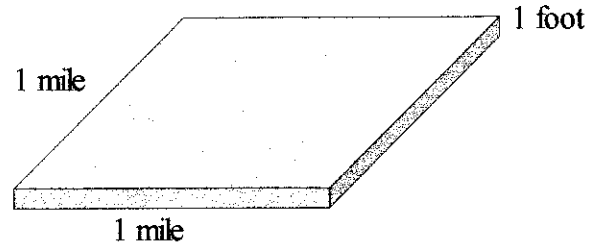
Answer

A parcel of perfectly flat land is in the shape of a square. Each side is exactly equal to 1.000 mile.

Water covers the land exactly 1.000 foot deep. How many gallons are in this rectangle of water?

Answer accurately to 4 significant figures.

Note: 1 gallon = 231.0 cubic inches.



$$V = lwh$$

$$= \left(\frac{1 \text{ mi}}{1} \cdot \frac{5280 \text{ ft}}{1 \text{ mi}} \cdot \frac{12 \text{ in}}{1 \text{ ft}} \right) \left(\frac{1 \text{ mi}}{1} \cdot \frac{5280 \text{ ft}}{1 \text{ mi}} \cdot \frac{12 \text{ in}}{1 \text{ ft}} \right) \left(\frac{1 \text{ ft}}{1} \cdot \frac{12 \text{ in}}{1 \text{ ft}} \right)$$

$$= (63360 \text{ in})(63360 \text{ in})(12 \text{ in})$$

$$= (4014489600 \text{ in}^2)(12 \text{ in})$$

$$= 48,173,875,200 \text{ in}^3$$

$$= \frac{48,173,875,200 \text{ in}^3}{1} \cdot \frac{1 \text{ gallon}}{231 \text{ in}^3}$$

$$= 208544914.285714285714$$

$$\therefore V = 2.085 \times 10^8 \text{ gallons}$$