

Math Forum - Problem of the Week

Sizing Up Sequoias [Problem #3068]



A sequoia tree seed weighs only $1/(5 \times 10^3)$ of an ounce. If a mature sequoia tree weighs an average of 2.16×10^{11} times as much, how much does the average mature sequoia weigh?



Remember to give the weight in a reasonable unit.

Extra: If I weigh 100 lbs, how many seeds would it take to equal my weight? How many of me would it take to equal the weight of the tree?

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<http://mathforum.org/pows/>

16 oz = 1 pound
2000 lbs = 1 ton

$$(2 \times 10^{-4})(2.16 \times 10^{11})$$

$$4.32 \times 10^7$$

$$\frac{2.16 \times 10^{10}}{5 \times 10^3}$$

$$= 4.32 \times 10^7 \text{ ounces}$$

$$\frac{1.6 \times 10^8}{2 \times 10^3} = 2.7 \times 10^6 \text{ lbs}$$

$$\frac{1}{(5 \times 10^3)}$$

$$= \frac{1}{2} \times 10^{-3} = 0.5 \times 10^{-3}$$

$$= \frac{1}{5} \times 10^{-3} = 0.2 \times 10^{-3}$$

$$\frac{1}{5000} \times \frac{2}{2} = \frac{2}{10000} \frac{2}{10^4}$$

$$2 \times 10^{-4}$$

$$= 2 \times 10^{-3}$$

$$2,700,000 \text{ lbs} \checkmark$$

$$= 1.35 \times 10^3 \text{ tons}$$

$$1350 \text{ tons} \checkmark$$