

## Answer on Question #47593 - Chemistry – Other

### Question

All the gold ever mined would fill a cube measuring 60.0 feet on a side. Gold futures sold today on the New York Stock Exchange for \$1213.00 per ounce. If there are exactly 16 ounces in a pound and the density of gold is 19.33 grams per cubic centimeter, what is the value of all the gold ever mined?

### Answer:

$$1 \text{ foot} = 30.48 \text{ centimeters, so } 60 \text{ feet} = 60 \cdot \frac{30.48 \text{ cm}}{1 \text{ foot}} = 1828.8 \text{ cm}$$

The volume of all the gold ever mined is:

$$V(\text{Au}) = 1828.8^3 = 6116438864 \text{ cm}^3$$

The mass of all the gold ever mined is:

$$m(\text{Au}) = \rho V = 19.33 \cdot 6116438864 = 118230763239 \text{ g} = 118230763.239 \text{ kg}$$

$$1 \text{ pound} = 0.454 \text{ kilograms, so } 118230763.239 \text{ kg} = 118230763.239 \text{ kg} \cdot \frac{1 \text{ lb}}{0.454 \text{ kg}} = 260420183345 \text{ lbs}$$

$$1 \text{ pound} = 16 \text{ ounces, so } 260420183345 \text{ lbs} = 260420183345 \text{ lbs} \cdot \frac{16 \text{ ounces}}{1 \text{ lb}} = 4166722933521 \text{ ounces}$$

$$1 \text{ ounce of gold costs } \$1213.00, \text{ so } 4166722933521 \text{ ounces of the gold (all the gold ever mined) cost: } 4166722933521 \text{ ounces} \cdot \frac{\$1213.00}{1 \text{ ounce}} = \$5054234918360974 = \$5.054 \text{ quadrillions}$$

**Answer:** \$5054234918360974, or \$5.054 quadrillions.