

Tue 10/30/18

Word Problems: finance, Average, and Measurement

51) A family has annual loan payments equaling 32% of their annual income. During the year, their loan payments total \$15,125.50. What is their annual income?

(write it out as is/of) → 32% of A.I. is \$15125.50.

$$\frac{15}{\text{of}} = \frac{\%}{100} \rightarrow \frac{15125.50}{x} = \frac{32}{100} \rightarrow 100(15125.50) = 32x$$

$$1512550 = 32x$$

$$\frac{1512550}{32} = x$$

$$47267.19 = x$$

52) A family has a monthly mortgage payment of \$500, which is 16% of their monthly income. What is their monthly income?

$$\frac{15}{\text{of}} = \frac{\%}{100} \rightarrow \frac{500}{x} = \frac{16}{100} \rightarrow 500(100) = 16x$$

$$50000 = 16x$$

$$\frac{50000}{16} = x$$

$$\boxed{\$3125 = x}$$

59) To get an A in a course, you must have an average of at least 90 on four tests of 100 points each. The scores on your first three tests were 87, 92, 84. What must you score on the fourth test to get an A for the course?

$$\frac{87 + 92 + 84 + x}{4} = 90$$

↓

↓

$$\frac{263 + x}{4} = 90$$

↓

$$263 + x = 90 \cdot 4$$

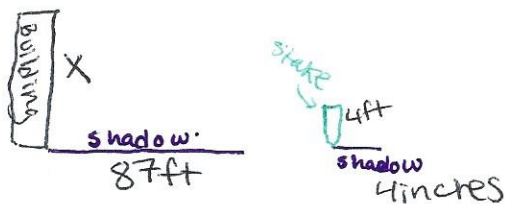
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$$263 + x = 360$$

↓

$$x = 360 - 263 \rightarrow \boxed{x = 97}$$

67 To obtain the height of the Chrysler Building in New York, you measure the building's shadow and find out that it is 87 ft long. You also measure the shadow of a four foot stake and find that it is 4 inches long. How tall is the Chrysler Building?



$$\frac{\text{object}}{\text{shadow}} = \frac{\text{object}}{\text{shadow}}$$

$$\frac{x'}{87'} = \frac{4'}{4''}$$

keep the same units convert one to look like the other

$$\frac{x'}{87'} = \frac{48''}{4''}$$

* cross multiply and divide

$$4x = 87(48)$$

$$4x = 4176$$

$$x = 4176/4$$

$$x = 1044 \text{ ft}$$