

Name:

Quiz 2

Instructions: Answer all of the questions as best as you can. Show all your work and make it clear what your answer is. Calculators are allowed, but not graphing calculators.

1. When Luke blew up the Death Star, the number of Imperial Troops decreased by 17%. If there were 182 million Imperial Troops after the Death Star exploded, how many troops did the Empire have before? 182 million is 17% less than the number of troops beforehand, so the number of troops beforehand is

$$\frac{182,000,000}{.83} = 219,277,108.4$$

2. Real estate prices in Guatemala are very reasonable. It only costs 210,000 quetzals to purchase one square kilometer of land. How much does land cost in US dollars per square mile?

(1 mile = 1.61 km and 1 US dollar = 7.94 quetzals)

The price of land is

$$\left(210,000 \frac{\text{quetzals}}{\text{km}^2}\right) \left(\frac{1 \text{ dollar}}{7.94 \text{ quetzals}}\right) \left(\frac{1.61 \text{ km}}{1 \text{ mi}}\right) \left(\frac{1.61 \text{ km}}{1 \text{ mi}}\right) = 68,556.80 \frac{\text{dollars}}{\text{mi}^2}$$

so it will cost \$68,556.80 per square mile.

3. Consider the following deductive argument.

Polar bears that do not hibernate feed on human beings.

Walter is a polar bear that always hibernates.

Therefore, Walter does not eat human beings.

(a) Determine whether the argument is valid or invalid using a Venn diagram.

The argument is invalid. The first premise does not say that bears who do hibernate don't feed on humans. It is possible that Walter is one of the kinds of polar bears that hibernate **and** eat human beings.

(b) If the argument is valid, is the argument sound? Why?

n/a