

Name:

Quiz #2

Instructions: do all of the following problems on **both sides** of this paper. Show all of your work.

1. Assateague Island is home to a population of wild ponies. The island is located off the coast of Maryland and Virginia. The ponies on the Virginia side of the island belong to the volunteer fire department of nearby Chincoteague Island. To keep the pony population in check, the Chincoteague Fire Department rounds up the ponies once per year and holds a fundraiser where they sell the ponies. In 2001 they raised \$166,725, which is 3.7% less than they raised in 2000. How much money did the Chincoteague Fire Department raise in the year 2000?

So 166,725 is 3.7% less than the amount raised in the year 2000. If x is the amount raised in 2000, then 166,725 is 96.3% of x . This translates to

$$\begin{aligned} 166,725 &= (.963)x \\ \frac{166,725}{.963} &= x \\ 173,130.8411 &= x \end{aligned}$$

So they made \$173,130.84 in the year 2000. (They sold 84 ponies that year.)

2. The density of ponies on Assateague Island is 13 ponies per square mile. Find the value of the island in dollars per acre.

(1 square mile = 640 acres, 1 pony = 1800 dollars)

$$\left(13 \frac{\text{ponies}}{\text{square mile}} \right) \left(\frac{1 \text{ square mile}}{640 \text{ acres}} \right) \left(\frac{1800 \text{ dollars}}{1 \text{ pony}} \right) = 36.5625 \frac{\text{dollars}}{\text{acre}}$$

So the value is \$36.56 per acre.

3. Consider the following deductive argument:

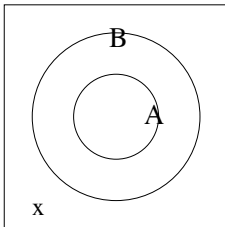
Premise #1: Ponies from Assateague Island do not require shoes.

Premise #2: Connemara ponies require shoes.

Conclusion: There are no Connemara ponies from Assateague Island.

Determine whether this argument is valid or invalid and justify your answer.

Let A be the ponies from Assateague Island, let B be the ponies that don't require shoes and let x be the Connemara ponies.



The argument is valid, as the premises place the x clearly outside of the set A .