

**Math 150 Quiz 3 – Version B**  
September 23, 2013

Name: ANSWER KEY

Instructions: Use your own scrap paper. Write your answers in the spaces provided.

1. What is a *valid* (deductive) argument? An argument in which the conclusion is necessarily true if the premises are true.

2. What is a *sound* (deductive) argument? a valid argument with true premises.

3. Negate the following statement: *No math person is not smart.*

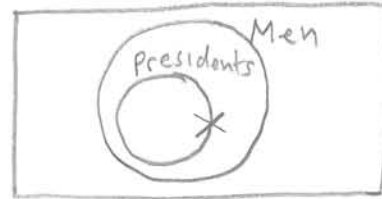
Some (at least one) math person is not smart.

4. Determine whether the following arguments are valid or invalid. Give reasons by either drawing a Venn diagram or naming the type of argument used.

**Argument**

**Valid/Invalid? Reason?**

(a)  
P1: All U.S. presidents have been men  
P2: George Washington is a man  
∴ George Washington was a U.S. president

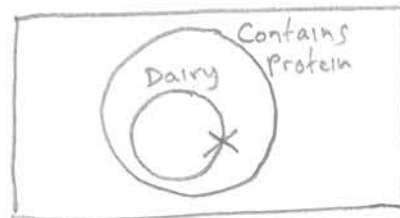


X is George Washington.  
Invalid!

(b)  
P1: If you live in the Bronx, you live in N.Y.  
P2: John does not live in N.Y.  
∴ John does not live in the Bronx

Valid! Denying the conclusion

(c)  
P1: All dairy products contain protein  
P2: Soybeans contain protein  
∴ Soybeans are dairy products



X is soybeans  
Invalid!

5. Given that  $1 \text{ ft} = 12 \text{ in}$  and  $\$1 = \text{£}0.62$ , convert  $\$/\text{ft}^2$  to  $\text{£}/\text{in}^2$ .

$$\frac{\$7}{\text{ft}^2} = \underline{0.03} \text{ £}/\text{in}^2$$

Bonus: How many centimeters are there in a kilometer? 100 000 or  $10^5$