1.  Determine the truth value of the following statement:   
The Leaning Tower of Pisa is located in England and all prime numbers divisible by 1.

True or False

2. Construct a truth table for (p V q)

**3.** Fill in the heading of the following truth table using any of *p, q*, ,, and Λ.

|  |  |  |
| --- | --- | --- |
| *p* | *q* | \_\_\_\_\_\_\_\_\_ |
| **T** | **T** | **F** |
| **T** | **F** | **T** |
| **F** | **T** | **F** |
| **F** | **F** | **F** |
|  |  |  |

4. Construct a truth table for (~p Vq)

5. Given p is true, q is true, and r is false, find the truth value of the statement ~q (~p Λ r). Show step by step work.

6. Determine which, if any, of the three statements are equivalent.  
I) If the pipe is leaking, then I will not call the roofer.  
II) Either the pipe is leaking or I will call the roofer.  
III) If the pipe is not leaking, then I will call the roofer.

I and II are equivalent

II and III are equivalent

I and III are equivalent

I, II, and III are equivalent

None are equivalent

7. Write the argument below in symbols to determine whether it is valid or invalid. State a reason for your conclusion. Specify the p and q you used.   
   
Either the gazebo is made of wood or the vine is growing on the gazebo.   
The gazebo is not made of wood.   
The vine is growing on the gazebo.