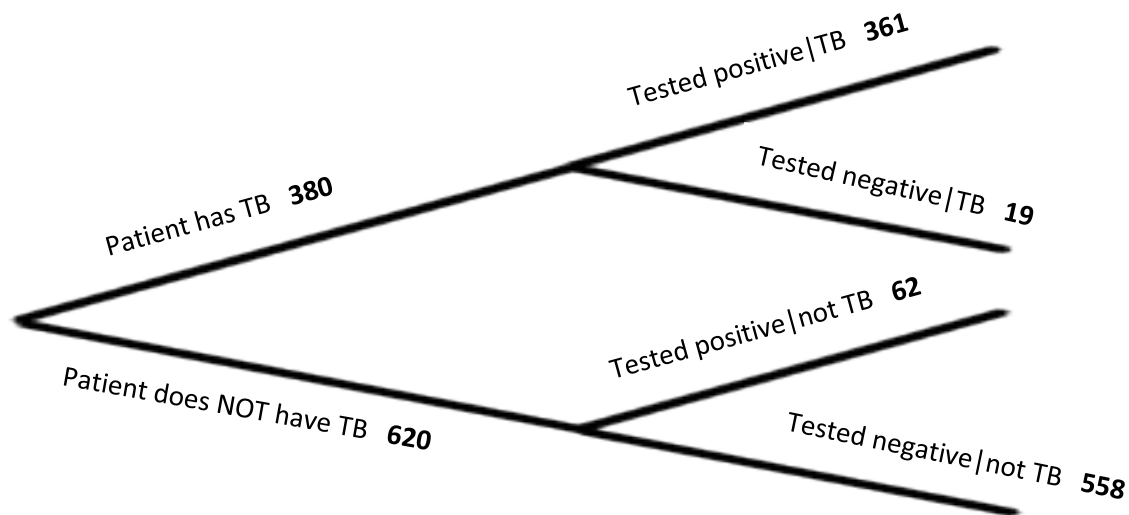# 9.1 TB or Not TB?
A Develop Understanding Task

Tuberculosis (TB) can be tested in a variety of ways, including a skin test. If a person has turberculosis antibodies, then they are considered to have TB. Below is a tree diagram representing data based on 1,000 people who have been given a skin test for turberculosis.

Patient has TB **380**

Tested positive|TB **361**

Tested negative|TB **19**

Patient does NOT have TB **620**

Tested positive|not TB **62**

Tested negative|not TB **558**

1. Use your knowledge to write several probability statements about this test (based on the numbers provided).

2. Look over the statements you wrote. Put an asterisk (*) next to those that are conditional probability statements (statements based on margin "row" or "column" percentages). If there are not any, add some now.

3. Part of understanding the world around us is being able to take information, make sense of it, and then explain it to others. Based on your statements above, what would you say to a friend regarding the validity of their results if they are testing for TB and only get a skin test? Be sure to use data to best inform your friend.

Other questions to consider....

4. In this situation, explain the consequences of errors (having a test with incorrect results).

5. If a health test is not 100% certain, why might it be beneficial to have the results lean more toward a false positive?

6. Is a sample space of 200 enough to indicate whether or not this is true for an entire population?

7. How would you answer the young adult who tested positive and asks, "Do I really have TB?"