Bayesian vs Frequentist answers

1. I think if someone tests positive, it is a statistically significant result because the chance of someone testing positive when they are not positive is less than a 5% chance.
2. Infection rates range from 0-1% in .01 increments

**When infection rates are .01% (.001):**

Probability of having HIV = P(HIV) = .001

Probability of having a positive result given that the person has HIV = P(positive|HIV) = 1

Probability of positive test but does not have HIV = P(positive| no HIV) = .05

Probability of having HIV given a positive test = P(HIV|positive) = 1/51 = 1.96%

**When infection rates are .02% (.002):**

Probability of having HIV given a positive test = P(HIV|positive) = 2/52 = 3.58%

**When infection rates are .03% (.003):**

Probability of having HIV given a positive test = P(HIV|positive) = 3/53 = 5.66%

**When infection rates are .04% (.004):**

Probability of having HIV given a positive test = P(HIV|positive) = 4/54 = 7.41%

**When infection rates are .05% (.005):**

Probability of having HIV given a positive test = P(HIV|positive) = 5/55 = 9.1%

**When infection rates are .06% (.006):**

Probability of having HIV given a positive test = P(HIV|positive) = 6/56 = 3.58%

**When infection rates are .07% (.007):**

Probability of having HIV given a positive test = P(HIV|positive) = 7/57 = 12.28%

**When infection rates are .08% (.008):**

Probability of having HIV given a positive test = P(HIV|positive) = 8/58 = 13.79%

**When infection rates are .09% (.009):**

Probability of having HIV given a positive test = P(HIV|positive) = 9/59 = 15.25%