✖ Try again once you are ready.

Required to pass: 80% or higher

You can retake this quiz up to 3 times every 8 hours.

Back to Week 1

Retake

✔ 1 / 1 point

1.
Which of the following corresponds to the formula for the discrete form of Bayes' Rule?

✔ 1 / 1 point

2.
Of women ages 40 and over, 10 out of 1000 have breast cancer. A mammography has 80% sensitivity (true positive rate) and a 90% specificity (true negative rate). A woman walks into a clinic for a routine screening (mammography). What is the probability that she has breast cancer and tests positive?

✖ 0 / 1 point

3.
Of women ages 40 and over, 10 out of 1000 have breast cancer. A mammography has 80% sensitivity (true positive rate) and a 90% specificity (true negative rate). Two women walk into a clinic for a routine screening (mammography) and both women test positive for breast cancer. What is the probability that at least one of the women has breast cancer?

✔ 1 / 1 point

4.

True or False: As new information comes in, our posterior beliefs based on the previous information become our new prior beliefs.

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1 / 1 point

5.
Which of the following corresponds to a Frequentist interpretation of the statement "the probability of rain tomorrow is 30 percent"?

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1 / 1 point

6.
Which of the following statements can be used to describe a 95 percent Bayesian credible interval for a parameter μ, but not a 95 percent Frequentist confidence interval?

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0 / 1 point

7.
Hearing about your brilliant success in working with M&Ms, Mars Inc. transfers you over to the Skittles department. They recently have had complaints about tropical Skittles being mixed in with original Skittles. You decide to conduct a frequentist analysis. If the findings suggest than more than 1% of sampled supposedly original Skittles are actually tropical you will recommend action to be taken and the production process to be corrected. You will use a significance level of $\alpha = 0.1$. You randomly sample 300 supposedly original skittles, and you find that five of them are tropical. What should be the conclusion of your hypothesis test? Hint - $H_0 : p = 0.01$ and $H_1 : p > 0.01$.

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0 / 1 point

8.
You go to Las Vegas and sit down at a slot machine. You are told by a highly reliable source that, for each spin, the probability of winning the jackpot is either 1 in 1,000 or 1 in 1,000,000, but you have no prior information to tell you which of the two it is. You play ten times, but do not win the jackpot. What is the posterior probability that the true odds of hitting the jackpot are 1 in 1,000?

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1 / 1 point

9.

True or False: As long as the prior places non-zero probability on all possible values of a proportion, the posterior of the proportion is guaranteed to converge to the true proportion as the sample size approaches infinity.

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1 / 1 point

10.

One of the advantages of Bayesian statistics is its usefulness in making decisions. Suppose you are deciding between two actions, A, and B, and are testing between two mutually exclusive hypotheses, H_1 and H_2. If you choose action A, you receive \$1 if H_1 is true and nothing if it is false. If you choose action B, you receive \$2 if H_1 is true and lose \$1 if it is false. Suppose H_1 is true with posterior probability p. At what value of p are you indifferent between action A and action B?
