

STAT 110 – Exam 3 – Seventeen Extra Practice Answers

1) If a fair die is rolled five times and the outcomes are 44444, then the probability that 4 appears on the next roll is:
B) $1/6 = 16.67\%$

2) The “Departed” was given 3 to 2 odds against winning the best picture Academy Award. This means the estimated probability of it winning was:
B) $2/5 = 40\%$

3) The probability distribution of for the color of M&M’s in a standard bag is:

Color:	Brown	Red	Yellow	Green	Orange	Blue
Probability:	0.13	0.13	0.14	0.16	0.20	?

To make this a valid distribution, the probability of a blue M&M must be:

D) 0.24

Questions 4-6 are based on the following questions: 70% of students in a class are from in-state and 60% of students in a class are female. 45% of the student in a class are females from in-state.

4) What percent of students are from out-of state?
B) 30%

5) What percent of students are in-state but not female?
A) 25%

6) What percent of students are either in-state or female?
E) 85%

Questions 7-9 are based on the following set-up. The probability that the first dart thrown hits bullseye is 20%. If the first is a hit, the probability the second is a hit is 50%. If the first is a miss, the probability the second is a hit is 25%.

7) What is the probability that both darts hit the bullseye?
B) 10%

8) What is the probability that at least one dart hits the bullseye?
D) 40%

9) Getting a bullseye on the first toss and getting a bullseye on the second toss are:
D) Neither of the above

10) Consider a game where there is a 1% chance of winning \$100, a 50% chance of winning \$1, and a 49% chance of winning nothing. What amount do you expect to win with a ticket?
C) \$1.50

11) A psychological exam’s scores are approximately normally distributed with mean 20 and standard deviation 2. About what percent of the population should have scores between 20 and 24?
D) 47.5%

Questions 12-16 are based on the following set-up. A candidate needs more than 30% of the vote to force a run-off election. A random sample of 400 likely voters is selected to see if there is significant evidence that they can force a run-off. Of the sample, 123 favor the candidate.

12) The observed proportion favoring the candidate is:

D) $123/400 = 0.3075 = 30.75\%$

13) If the true percentage supporting the candidate is 30%, then the standard deviation of \hat{p} is:

A) $\sqrt{\frac{0.3(1-0.3)}{400}} \approx 0.023 = 2.3\%$

14) What null hypothesis should the candidate be testing?

B) $p=0.3$

15) What alternate hypothesis should the candidate be testing?

E) $p > 0.3$

16) This hypothesis test results in a p-value of 0.3925. If $\alpha=0.05$, the candidate should:

B) Conclude there is not enough evidence to reject the null hypotheses

17) If H_0 is the mean=5 and H_A is the mean < 5 , then rejecting H_0 means that:

B) We conclude the mean is less than 5