

Math 153 - Quiz 10

October 25, 2018

Name key

Score _____

Show all work to receive full credit. Supply explanations when necessary.

1. (2 points) It is generally recognized that it is wise to back up computer data. In any given year, assume that there is a 3% chance of computer disk drive failure. If copies of your computer data are stored on three independent disk drives, what is the probability that all three will fail during a year?

$$\frac{0.03}{\text{FAIL}} \cdot \frac{0.03}{\text{FAIL}} \cdot \frac{0.03}{\text{FAIL}}$$

$$\text{Prob is } (0.03)^3 = 0.000027$$

2. (3 points) The following data were collected in a study of the quality of fast-food chain drive-thru's. The data represent numbers of orders. (There are 1118 orders in all.)

	McDonald's	Burger King	Wendy's	Taco Bell
Order Accurate	329	264	249	145
Order Not Accurate	33	54	31	13

158

- (a) Two orders are selected at random WITH replacement. What is the probability that both are from Taco Bell?

$$\frac{158}{1118} \text{ TB} \cdot \frac{158}{1118} \text{ TB}$$

$$\left(\frac{158}{1118}\right)^2 = \frac{24964}{1249924} \approx 2.00\%$$

- (b) Two orders are selected at random WITHOUT replacement. What is the probability that both are from Taco Bell?

$$\frac{158}{1118} \times \frac{157}{1117} = \frac{24806}{1248806} \approx 1.99\%$$

- (c) A single order is selected at random. What is the probability that it is not correct given that it is from Taco Bell?

$$\frac{13}{158} \approx 8.23\%$$