

Business Statistics FALL FINAL PRACTICE

1. Write the multiplication rule on the line below.

a) $P(A \cap B) =$ _____

b) In order to use the multiplication rule, event A and event B must be _____.

2. Write the formula for compound probability.

$P(A \cup B) =$ _____

3. What is the term used to describe all of the outcomes possible? **S** _____ **S** _____.

4. The probability of any event can never be more than ____ or less than ____.

5. The sum of the probabilities for all outcomes in a sample set is always ____.

6. TRUE or FALSE: Events are the possible results for any given outcome.

7. What probability symbol can be used in place of the word "and"? _____

8. What probability symbol can be used in place of the word "or"? _____

#9-14. Mega Clocks sells large clocks for industrial use throughout the world. The number of clocks sold in a given day is normally distributed with a mean of 200 and a standard deviation of 20.

9. Find the probability that the store sells fewer than 227 clocks on any single day?

10. The sales vice president of Mega Clocks gets a bonus if more than 220 clocks are sold. What is the probability that the store manager will earn the bonus on any single day?

11. Find the probability Mega Clocks sells an average of 204 or more clocks in a 7-day work week.

12. Find the proportion of days that Mega Store sells between 185 and 208 clocks on any single day?

13. The sales manager of Mega Clocks will be fired if mean sales are less than 197 clocks in the next 30-day month. What is the probability that the manager is fired at the end of the next month?

14. If you randomly select 100 days from Mega Clock's sales reports, what is the probability that the average sales for this period will fall between 199 and 202 clocks?

9.

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15. Calculate the expected value of Facebook stock given the following discrete random variables and outcomes.

x = state of the economy measured in two classes - "recession" or "boom"

y = another social media site surfaces as competition - "competition" or "no competition"

Both of these variables are independent.

	Recession	Boom
P(X)	.15	.85

15a. Find $P(Boom \cap Competition) =$ _____

15b. Find $P(Boom \cap No.Competition) =$ _____

	Competition	No Competition
P(Y)	.4	.6

15c. Find $P(Recession \cap Competition) =$ _____

15d. Find $P(Recession \cap No.Competition) =$ _____

15e. In calculating Facebook's expected value, consider the following outcomes:

If there is a boom and competition surfaces, Facebook will be worth \$20/share.

If there is a boom and no competition surfaces, Facebook will be worth \$80/share

If there is a recession and competition surfaces, Facebook will be worth \$10/share

If there is a recession and no competition surfaces, Facebook will be worth \$30/share

Facebook Expected Value \$ _____/share

