**Name _____ Period _____ Business Statistics PRACTICE FINAL**

**1. The sum of the probabilities for all outcomes in a sample set is always _____.**

**2. The probability of any event can never be more than _____ or less than _____.**

**3. 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 _____.**

**4. Write the formula for compound probability.**

$P(A \cup B) =$ _____

**#5-9. Columbia Television is a local retailer of big screen televisions. The number of televisions sold on any given day is normally distributed with a mean of 600 televisions, and a standard deviation of 55 televisions.**

**5. Find the probability that the store sells more than 580 televisions on any single day?**

**6. Columbia Television loses money when the average number of television sales is less than 595 in a 30-day period. What is the probability that the company loses money in a 30-day period?**

**7. The sales staff of Columbia Television loses its bonus when less than 550 televisions are sold in a day. What is the probability that the sales staff loses their bonus on any single day?**

**8. Find the proportion of days that Columba sells between 605 and 645 televisions in a single day.**

**9. Find the probability that Columbia sells an average of 605 or more televisions in a 5-day period.**

**5.**

**6.**

**7.**

**8.**

**9.**

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

***x*** **= state of the economy measured in three categories – "recession", "slow growth" or "boom"**
**y = another social media site surfaces as competition – "competition" or "no competition"** **Both of these variables are independent of each other.**

| x | Recession | Slow Growth | Boom |
|---|---|---|---|
| P(x) | .45 | .30 | .25 |

| y | Competition | No Competition |
|---|---|---|
| P(y) | .40 | .60 |

## Calculate each of the probabilities below (round % to nearest tenth of a per cent).

| | | |
|---|---|---|
| *P(Boom ∩ No Competition)* = _____ % | *P(Boom ∩ Competition)* = _____ % | *P(Recession ∩ Competition)* = _____ % |
| *P(Recession ∩ No Competition)* = _____ % | *P(Slow Growth ∩ Competition)* = _____ % | *P (Slow Growth ∩ No Competition)* = _____ % |

## Calculate Facebook's expected value using the following outcome values:

**If there is a boom and competition surfaces, Facebook will be worth $40/share.**
**If there is a boom and no competition surfaces, Facebook will be worth $50/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 $20/share**
**If there is slow growth and competition surfaces, Facebook will be worth $30/share**
**If there is slow growth and no competition surfaces, Facebook will be worth $45/share**

**Facebook Expected Value = $ _____/share**