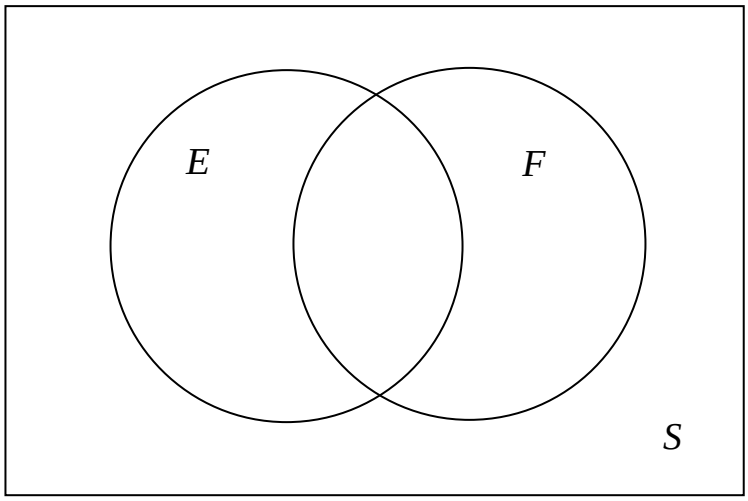
Math 1351 Review #2

1. *Suppose that* $P(E)=.62$, $P(F)=.25$, *and* $P(E\cap F)=.16$.

a) Complete the following probability diagram:



b) Find $P(E\cup F)$ **c)** Find $P(E\cap \bar{F})$ **d)** Find $P(\bar{E}\cap \bar{F})$

e) Find $P(E\,|\,F)$ **f)** Find $P(F\,|\,E)$ **g)** Find the odds in favor of event *F*.

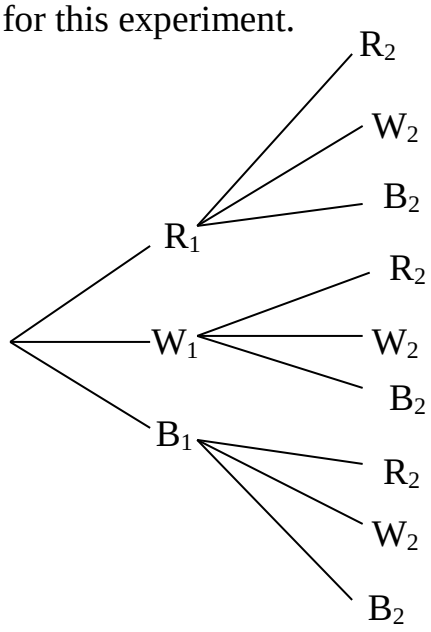
2. At a company, ID numbers consist of two letters(A-Z) followed by 5 digits(0-9) with no repeating letters or digits.

a) How many different ID numbers are possible?

b) What is the probability that a randomly assigned ID number would have the letters B and P on it?

3. A box contains two red, three white, and four blue tickets. Two tickets will be randomly drawn without replacement.

a) Complete the probability tree for this experiment.



b) Find the probability of drawing a red ticket and a blue ticket in either order.

c) Find the probability of drawing a red ticket on the second draw.
d) Find the probability of drawing a blue ticket on the second draw.
e) Find the probability of drawing a white ticket on the second draw.
f) Find the probability that both tickets drawn will have the same color.
g) If a blue ticket is drawn second, what is the probability that a red ticket was drawn first?

4. A team of four players is to be selected from a group of eight boys and six girls.
a) How many different teams are possible?
b) How many different teams are possible if there must be two boys and two girls?
c) How many different teams are possible if they must all be boys?
d) If a team is randomly assembled, what is the probability that it will have two boys and two girls?
e) If a team is randomly assembled, what is the probability that it will have all boys?
f) If a team is randomly assembled, what is the probability that it will have at least one girl?

5. The table gives the results of a survey question which asked: "Are federal income taxes too high, about right, too low, or don't know?". If a respondent is chosen at random, determine the following:

	Too High	About Right	Too Low	Don't Know	Total
Male	289	192	6	10	497
Female	257	153	3	14	427
Total	546	345	9	24	924

a) $P(Female)$ **b)** $P(About\ Right)$ **c)** $P(Male\ or\ Too\ Low)$
d) $P(Female\ and\ Don't\ Know)$ **e)** $P(Female|Don't\ Know)$ **f)** $P(Don't\ Know|Male)$

6. A player rolls a fair die and receives a number of dollars equal to the number of dots showing on the face of the die.
a) If the game costs \$1 to play, what's the expected value of the game?
b) If the game costs \$2 to play, what's the expected value of the game?
c) What is the most the player should be willing to pay to play the game and not lose money in the long run?

7. A die is rolled 100 times with the following results:

Outcome	1	2	3	4	5	6
Frequency	17	16	17	19	13	18

a) Find the experimental probability of rolling a 4.
b) Find the experimental probability of rolling an odd number.