Tom has 28 movies on his watch list, including 12 western, 10 comedies and 6 drama. What is the probability for each of the following selections?

1) **Picking a western?** $\dfrac{12}{28} \rightarrow \boxed{\dfrac{3}{7}}$

2) **Picking a western or drama?**

$\dfrac{12}{28} + \dfrac{6}{28} = \dfrac{18}{28} \rightarrow \boxed{\dfrac{9}{14}}$

3) **Picking a western then drama?**

$\dfrac{12}{28} \cdot \dfrac{6}{27} = \boxed{\dfrac{2}{21}}$

Tom has 28 movies on his watch list, including 12 western, 10 comedies and 6 drama. What is the probability for each of the following selections?

4) Picking 5 movies; 3 western and 2 drama?

$$\frac{_{12}C_3 \cdot {_6}C_2}{_{28}C_5} = \boxed{\frac{55}{1638}}$$

5) Picking 5 movies; all western or all comedy?

$$\frac{_{12}C_5}{_{28}C_5} + \frac{_{10}C_5}{_{28}C_5} = \boxed{\frac{29}{2730}}$$

6) Picking 5 movies; at least 3 comedies?

3C/2N
4C/1N
5C

$$\frac{_{10}C_3 \cdot {_{18}}C_2}{_{28}C_5} + \frac{_{10}C_4 \cdot {_{18}}C_1}{_{28}C_5} + \frac{_{10}C_5}{_{28}C_5} = \boxed{\frac{311}{1365}}$$
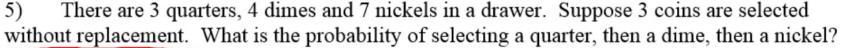
WB 202 Assignment: #1-19; E.C. for All

Eli has 10 baseball cards of 10 different players in his pocket. Three players are pitchers, 5 are outfielders and 2 are catchers. If Eli randomly selects a card to trade, find each probability...

1) P (pitcher or outfielder)

$$\frac{4}{5}$$

2) P (pitcher or catcher)

$$\frac{1}{2}$$

3) A furniture importer has ordered 30 grandfather clocks from an overseas manufacturer. Four clocks are damaged in shipment, but the packaging shows no signs of damage. If a dealer buys 6 of the clocks without examining them first, what is the probability that none of the 6 clocks are damaged?

30-4   26

$$\frac{_{26}C_6}{_{30}C_6} = \frac{26}{30} \cdot \frac{25}{29} \cdot - \quad - \quad - \quad - \quad - \quad \frac{506}{1305}$$

4) A survey show that 60% of the students who have computers use them for projects, 85% use them for playing games, and 55% use them for both. What is the probability that a student with a home computer uses it for project or playing games?

$$60 + 85 - 55 = \quad 90\%$$

5) There are 3 quarters, 4 dimes and 7 nickels in a drawer. Suppose 3 coins are selected without replacement. What is the probability of selecting a quarter, then a dime, then a nickel?

$$\frac{3}{15} \cdot \frac{4}{14} \cdot \frac{7}{13} = \qquad \frac{1}{26}$$
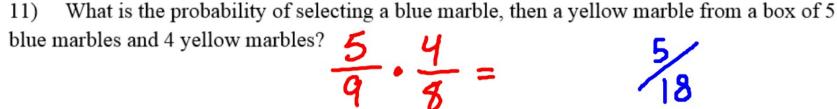
6) A box contains 5 triangles, 6 circles and 4 squares. If a figure is removed, replaced and a second figure is picked, what is the probability that a triangle and then a circle will be picked?

$$\frac{2}{15}$$

A spinner numbered 1 – 10 is spun. Find each probability…

7) P (less than 5 or even)   8) P (even or odd)   9) P (prime or even)

$$\frac{7}{10}$$

$$1$$

$$\frac{4}{10} + \frac{5}{10} - \frac{1}{10} \frac{8}{10} = \boxed{\frac{4}{5}}$$

10) A basket contains 4 plums, 6 peaches and 5 oranges. What is the probability of picking 2 oranges, then a peach if 3 pieces of fruit are selected at random?

$$\frac{5}{15} \cdot \frac{4}{14} \cdot \frac{6}{13} = \qquad \frac{4}{91}$$

11) What is the probability of selecting a blue marble, then a yellow marble from a box of 5 blue marbles and 4 yellow marbles?

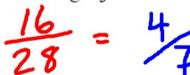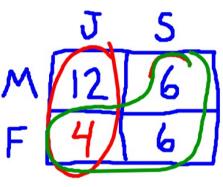$$\frac{5}{9} \cdot \frac{4}{8} = \quad \frac{5}{18}$$

A department store employs 28 high school students, all juniors and seniors. Six of the 12 seniors are females and 12 of the juniors are males. One student employee is chosen at random…

12) What is the probability of selecting a senior or a female?

$$\frac{12}{28} + \frac{10}{28} - \frac{6}{28} = \quad \frac{4}{7}$$

	J	S
M	12	6
F	4	6

13) What is the probability of selecting a junior?

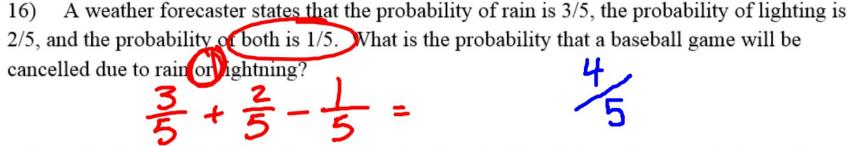$$\frac{16}{28} = \frac{4}{7}$$

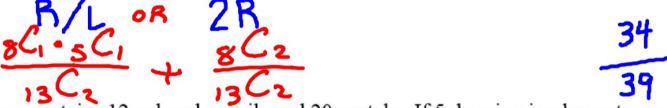14) What is the probability of selecting a male then a female?

$$\frac{18}{28} \cdot \frac{10}{27} = \quad \frac{5}{21}$$

15) What is the probability of randomly selecting two oranges from a bowl of 5 oranges and 4 tangerines, if the first selection is replaced?

$$\frac{5}{9} \cdot \frac{5}{9} = \quad \frac{25}{81}$$

16) A weather forecaster states that the probability of rain is 3/5, the probability of lighting is 2/5, and the probability of both is 1/5. What is the probability that a baseball game will be cancelled due to rain or lightning?

$$\frac{3}{5} + \frac{2}{5} - \frac{1}{5} = \qquad \frac{4}{5}$$

17) What is the probability of randomly selecting a knife, a fork, and a spoon in that order from a kitchen drawer containing 8 spoons, 8 forks and 12 knifes?

$$\frac{32}{819}$$

18) A baseball team's pitching staff has 5 left-handed and 8 right-handed pitchers. If 2 pitchers are randomly chosen to warm up, what is the probability that at least one of them is right-handed?

$$\overset{R/L}{\frac{8C_1 \cdot 5C_1}{13C_2}} \quad OR \quad \overset{2R}{\frac{8C_2}{13C_2}} \qquad \frac{34}{39}$$

19) An art box contains 12 colored pencils and 20 pastels. If 5 drawing implements are chosen at random, what is the probability that at least 4 of them are pastels?

$$\frac{20C_4 \cdot 12C_1}{32C_5} + \frac{20C_5}{32C_5} = \qquad 0.37$$

Quick Review

The Past 2 Days...

Basic Probability $\dfrac{\text{Described}}{\text{Total}}$

THEN (Multiple Events)

Set up probability for each part then MULTIPLY

Multiple Groups

Use Combinations for each group

OR (Multiple Outcomes)

Set up probability for each part then ADD

At Least

*check for overlap, if so we SUBTRACT

WB 203   More Mixed Practice

1)   A green number cube and a red number cube are tossed. What is the probability that a 4 is shown on the green number cube and greater than 4 is shown on the red number cube?

$$\frac{1}{6} \cdot \frac{2}{6}$$

2)   A spinner has 15 equal sections. What is the probability of landing on a prime number or a two digit number?

$$\frac{6}{15} + \frac{6}{15} - \frac{2}{15}$$

2 3 5 7 ⑪ ⑬
10 ⑪ 12 ⑬ 14 15

3)   What is the probability of randomly taking 2 blue notebooks from a self which has 4 blue and 3 black notebooks?

$$\frac{4}{7} \cdot \frac{3}{6}$$

4)   A piggy bank contains 4 nickels, 4 dimes, and 7 quarters. Three coins are removed, with replacement. What is the probability of selecting a nickel, a dime, and a quarter in that order?

$$\frac{4}{15} \cdot \frac{4}{15} \cdot \frac{7}{15}$$

5)   There is a 40% chance of winning a game, a 5% chance of tying and a 55% chance of losing. What is the probability of not losing? $40 + 5$

6)   A class has 18 students; 8 guys and 10 girls. And a group of 5 students is being picked…

a. What is the probability that a group will have 2 guys and 3 girls?

$$\frac{{_8C_2} \cdot {_{10}C_3}}{{_{18}C_5}}$$

b. What is the probability that the group will have at least 4 guys? $\dfrac{{_8C_4} \cdot {_{10}C_1}}{{_{18}C_5}} + \dfrac{{_8C_5}}{{_{18}C_5}}$

Quiz...

Quiz Code: