

Applied Topics in Math  
12.5-12.7 Review

Name \_\_\_\_\_

For #1-4, each of the numbers 1-10 is written on a piece of paper and the ten sheets of paper are placed in a bowl. If one sheet of paper is selected at random from the bowl, determine the probability that the number selected is

1) less than 5.

1.  $\frac{4}{10} = \frac{2}{5}$

2) odd.

2.  $\frac{5}{10} = \frac{1}{2}$

3) even or greater than 6.

3.  $\frac{1}{10} + \frac{4}{10} = \frac{5}{10} = \frac{1}{2}$

4) odd and less than 6.

Handwritten:  $1, 3, 5, 7, 9$   
 $2, 4, 6, 8$   
or

4.  $\frac{1}{10} + \frac{4}{10} = \frac{5}{10} = \frac{1}{2}$

For #5-8, if two of the same ten sheets of paper mentioned above are selected, without replacement, from the bowl, determine the probability that

5) both numbers are even.

5.  $\frac{5}{10} \cdot \frac{4}{9} = \frac{1}{2} \cdot \frac{2}{3} = \frac{1}{3}$

6) both numbers are less than 5.

6.  $\frac{4}{10} \cdot \frac{3}{9} = \frac{2}{5} \cdot \frac{1}{3} = \frac{2}{15}$

7) the first number is odd and the second number is even.

7.  $\frac{5}{10} \cdot \frac{5}{9} = \frac{1}{2} \cdot \frac{5}{9} = \frac{5}{18}$

8) one number is greater than 7 or one number is even.

8.  $\frac{4}{10} \cdot \frac{6}{9} = \frac{2}{5} \cdot \frac{2}{3} = \frac{4}{15}$   
Handwritten:  $8, 10$

For #9-11, consider a standard deck of cards and that the card(s) chosen are selected at random.

9) Determine the probability that one card selected is a queen or a spade.

9.  $\frac{16}{52} = \frac{4}{13}$

10) Determine the probability that two cards selected are both black.

10.  $\frac{26}{52} + \frac{26}{52} = \frac{1}{2}$   
Handwritten:  $\frac{26}{52} + \frac{26}{52} = \frac{1}{2}$   
black or black

11) Determine the probability that one card selected is the number 8 or a picture card.

11.  $\frac{4}{13}$

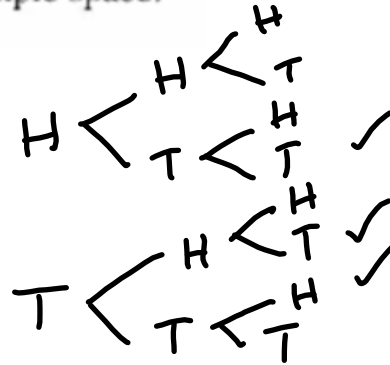
11a) Two events that cannot occur at the same time (as in #11) are called M. E.

*Three Coins* Three coins are tossed.

- a) Determine the number of points in the sample space.  $2 \cdot 2 \cdot 2 = 8$
- b) Construct a tree diagram and list the sample space.

Determine the probability that

- c) no heads are tossed.  $\frac{1}{8}$
- d) exactly one head is tossed.  $\frac{3}{8}$
- e) three heads are tossed.  $\frac{1}{8}$



The number of men and women wearing hats at a Yankees game is recorded and shown below.

	Hat	No Hat	Total
Men	35	21	56
Women	10	32	42
Total	45	53	98

If one of these people is selected at random, determine the probability that

12) the person was a woman.

17.  $\frac{42}{98} = \frac{21}{49} = \frac{3}{7}$

13) the person was wearing a hat, given that it was a man.

18.  $\frac{35}{56}$

14) the person is a man, given that he/she was not wearing a hat.

19.  $\frac{21}{53}$

15) the person was wearing a hat, given that it was a woman.

20.  $\frac{10}{42} = \frac{5}{21}$

Individuals are asked which evening news they watch most often. The results are summarized as follows. Use this table to answer #21-25.

Viewers	ABC	NBC	CBS	Other	Total
Men	30	20	40	55	145
Women	50	10	20	45	125
Total	80	30	60	100	270

If one of these individuals is selected at random, determine the probability that the person watches

21) ABC or NBC.

21.  $\frac{150}{270} = \frac{5}{9}$

22) ABC, given that the individual is a woman.

22.  $\frac{50}{125} = \frac{2}{5}$

23) ABC or NBC, given that the individual is a man.

23.  $\frac{50}{145} = \frac{10}{29}$

24) any station other than CBS, given that the individual is a woman.

24.  $\frac{105}{125} = \frac{21}{25}$

$$\frac{24}{50} \cdot \frac{23}{49} =$$

$$\frac{31}{50} \cdot \frac{30}{49} = \frac{93}{245}$$

$$1 - \frac{93}{245} = \frac{152}{245}$$