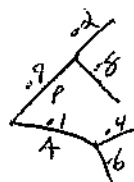Name: Key

Advance Math – Test 1 review

9/22/2016

1) If Mr. Peterson was here one day, the probability he will be here the next day is 0.2. If Mr. Peterson was gone one day, the probability he will be here the next day is 0.4. The probability that Mr. Peterson was gone any particular day is 0.1. What is the probability that Mr. Peterson will be gone one day and be here the next day? (Hint: Draw a tree-diagram)
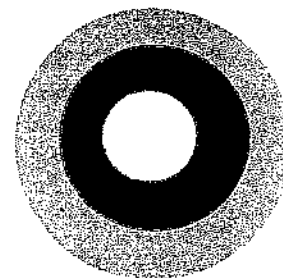
$$.1 \cdot .4 = \boxed{4\%}$$

2) In the dart board to the right below, the white circle has a 3 in diameter, the black circle has a 6 in diameter, the grey circle has an 8 in diameter.

a) What is the probability that someone could get a dart in the black?

b) What is the probability that someone would not get a dart in the grey?

$$G \rightarrow 16\pi$$
$$B \rightarrow 9\pi$$
$$W \rightarrow 2.25\pi$$

a) $\dfrac{9\pi - 2.25\pi}{16\pi} = \dfrac{42.2\%}{}$

b) $\dfrac{9\pi}{16\pi} = 56.3\%$

3) If I randomly assigned our 5-person class into groups of 4, what is the probability that Savanna would be on a team with Ericka?

$$_5C_4 = \dfrac{5!}{4! \, 1!} = 5 \qquad \dfrac{3}{5} = 60\%$$

4)

a) What is the probability of rolling an odd number and then rolling a 2 when a dice is rolled twice?

$$\dfrac{3}{6}\dfrac{1}{2} \cdot \dfrac{1}{6} = \boxed{\dfrac{1}{12}} \qquad 8.3\%$$

b) What is the probability of drawing a face card and then drawing an ace without replacing? Thus winning at blackjack.

$$\dfrac{12}{52} \cdot \dfrac{4}{52} = 1.8\%$$

c) What is the probability of flipping a heads and then rolling a multiple of three?

$$\dfrac{1}{2} \cdot \dfrac{2}{6} = \dfrac{1}{6} = \boxed{16.7\%}$$

d) I have 4 black socks and 12 of white socks, what is the probability that I can draw two consecutive socks and have a pair of black socks?

$$\dfrac{4}{16} \cdot \dfrac{3}{15} = \dfrac{1}{20} = 5\%$$

5) How do you read:

a) P(A∩B): " probability of A and B. "

b) P(A|B): " probability of A given B "

c) How do you read: $_5P_3$

" 5 things taken 3 at a time "

d) P(A∪B): " probability of A or B. "

6) There are 8 blue marbles, 2 green marbles, and 15 red marbles in a bag. Give answers as a percent.

a) What is the probability that Mr. Peterson will draw a grey marble? 0% or 100%

b) What is the probability that Savanna will draw a red marble? $15/25$ 60%

c) What is the probability that Ericka will draw a green or blue marble? $\frac{2}{25} + \frac{8}{25} = 40\%$ c)

d) What is the probability that Sam will not draw a blue marble? $1 - \frac{8}{25} = \boxed{68\%}$

e) What is the probability that Seth will draw a blue one and then a green one without replacing? $\frac{8}{25} \cdot \frac{2}{24}$ e)

f) What is the probability that Chey will draw a red one and then a blue one if she replaces the first marble? 2.7%

$$\frac{15}{25} \cdot \frac{8}{25} = 19.2\%$$

7) To play Yahtzee you must roll 5 dice.

a) What is the probability of rolling a Yahtzee on the first roll? $6\left(\frac{1}{6}\right)^5 = .077\%$

b) After rolling the first two times, Seth gets 3 fours. What is the probability that he will end with 3 fours? $\frac{5}{6}, \frac{5}{6} = 69.4\%$

c) After rolling the first two times, Savanna has 2 fives. What is the probability that she will get a Yahtzee?

$$\frac{1}{6} \cdot \frac{1}{6} \cdot \frac{1}{6} = \frac{1}{216} = .4\%$$

8) How many ways can we line our 5-person class up in a line?

$$5! = 120.$$

9) The volleyball team are making T-shirts for a fundraiser. They have 4 different colors of shirts and 9 different colors dying. How many different T-shirts can be made if only one shirt and one color are used for each T-shirt?

$$4 \cdot 9 = 36.$$

10) A survey asked 80 people if they owned a horse. The survey was sixty percent women. Sixty-seven percent of the women said yes and thirty-five percent of the men said no. Fill in the two-way table and answer the questions about it.

rounded

	Men	Women	
Yes	20.8	32.2	53
No	11.2	15.8	27
	32	48	80

a) What is the probability that a random person picked would own a horse? $\frac{57}{80} = 71.3\%$. $\frac{32}{80} + \frac{53}{80} - \frac{20.8}{80}$

80.3% b) What is the probability that a random person picked would be a male or own a horse?

19.8% c) What is the probability that a random person picked would be a female and not own a horse?

d) What is the probability that a random person picked would be a male or be a female? $\frac{32}{80} + \frac{15.8}{80}$

100%.

11) A study found that 12% of males and 3% of women had grey hair before age 40. Of the study participants, 45% were women.

a) What is the probability of a randomly selected person being a woman and have grey hair? 1.4%

b) What is the probability of a randomly selected person being a man and does not have grey hair? 48.4%

c) What is the probability of a randomly selected person being a man or having grey hair? $55 + 8 - 6.6$

$= 56.4\%$.

	M	F	
G	6.6	1.4	8
Non G	48.4	43.6	92