Unit 6B – Probability Review
PAP Geometry

Name: Key
Date: _____ Pd: ____

1. A jar contains 2 red marbles, 6 blue marbles, and 8 white marbles. Four marbles are chosen from the jar with replacement. What is the probability they are all white?

$$\frac{8}{16}\cdot\frac{8}{16}\cdot\frac{8}{16}\cdot\frac{8}{16}$$

$$\boxed{\frac{1}{16}}$$

2. Find the probability of drawing the given cards from a standard deck of 52 cards with replacement **and** without replacement.

a. a jack then a 7

w/o

$$\frac{4}{52}\cdot\frac{4}{51}=\boxed{\frac{4}{663}}$$

with

$$\frac{4}{52}\cdot\frac{4}{52}=\boxed{\frac{1}{169}}$$

b. a 5, then a face card, then an ace

w/o

$$\frac{4}{52}\cdot\frac{12}{51}\cdot\frac{4}{50}=\boxed{\frac{8}{5525}}$$

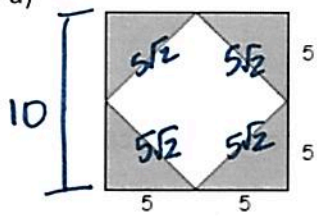
with

$$\frac{4}{52}\cdot\frac{12}{52}\cdot\frac{4}{52}$$

$$=\boxed{\frac{3}{2197}}$$

3. Find the probability that a dart thrown at the given target will hit the shaded region. Leave answers as a percent rounded to the tenth.

a)



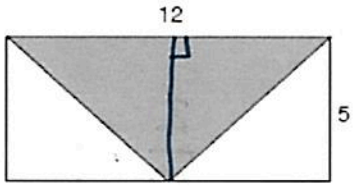
$A_{\square} = 100$

$A_{\square} = 50$

$$\frac{\text{shaded}}{\text{total}} = \frac{100-50}{100}$$

$$\boxed{50\%}$$

b)



$$A_{\triangle} = \frac{12\cdot 5}{2} = 30$$

$$A_{\square} = 12\cdot 5 = 60$$

$$\frac{30}{60} = \boxed{50\%}$$

4. You have a bag of 17 marbles. Four are blue, 6 are green, 2 are red, and the others are yellow. What is the probability of drawing a yellow marble? 5

$$\boxed{\frac{5}{17}}$$

5. What is the probability that a coin will land on heads and then a coin will land on tails?

$$\frac{1}{2} \cdot \frac{1}{2} = \boxed{\frac{1}{4}}$$

6. You have a bag of 17 marbles. Four are blue, 6 are green, 2 are red, and the others are yellow. What is the probability of drawing a red marble, putting it aside, and then drawing a green marble?

$$\frac{2}{17} \cdot \frac{6}{16} = \boxed{\frac{3}{68}}$$

7. What is the probability of drawing the ACE of diamonds from a deck of cards, putting it back in deck, shuffling the deck, and then drawing the ACE of clubs?

$$\frac{1}{52} \cdot \frac{1}{52} = \boxed{\frac{1}{2{,}704}}$$

	Job Satisfaction		
	Satisfied	Unsatisfied	Total
College	74	43	117
High School	224	171	395
Elementary	126	140	226
Total	424	354	778

8. What is the probability that a teacher is satisfied and teaches high school?

$$\frac{224}{778} = \boxed{\frac{112}{389}}$$

9. What is the probability that a teacher is satisfied with his/her job given that he/she teaches college?

$$\frac{P(\text{both})}{P(\text{given})} = \boxed{\frac{74}{117}}$$

10. What is the probability that a teacher is unsatisfied with his/her job given that he/she is an elementary school teacher?

$$\frac{140}{226} = \boxed{\frac{70}{113}}$$

11. The probability of being a male is .5 and the probability being a male and wearing seat belt is .1. What is the probability of wearing a seat belt given that the person is male?

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

12. A pizzeria offers 8 different toppings on their pizzas. If a customer wants to order a 3-topping pizza, how many possible options are there?

$${}_8C_3 = \boxed{56}$$

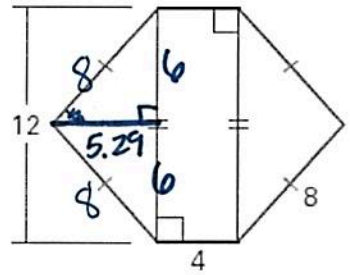
13. A summer camp offers 12 different afternoon activities. Caleb selects 2 of the activities to do today. How many possible outcomes are there if the order of the activities is important?

$${}_{12}P_2 = \boxed{132}$$

14. Seven friends are playing musical chairs. In the first round, there are 5 chairs, so only 5 of the friends will move on to the second round. How many different groups of friends are possible for the second round of the game?

$${}_7C_5 = \boxed{21}$$

15. Find the probability that a randomly chosen point in the figure lies in the shaded region.



$$A_\triangle = \frac{1}{2}(12 \cdot 5.29) = 31.74$$
$$\times 2\triangle$$

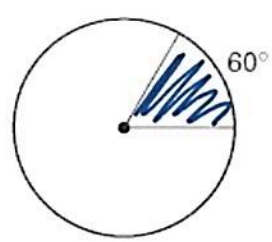
$$A_\square = 12 \cdot 4 = 48$$

63.48

$$\frac{\text{Shaded}}{\text{total}} = \frac{63.48}{111.48}$$

$$\boxed{56.9\%}$$

16. Find the probability that a randomly chosen point in the circle lies in the sector.



$$\frac{60}{360} = \frac{1}{6}$$

$$\boxed{16.7\%}$$