

Name:

PROBABILITY STUDY GUIDE

1. The salad bar at school has a number of different options – 2 kinds of lettuce, 3 cheeses, 5 veggies and 4 salad dressings. How many different ways can you order a salad if you pick one from each category (lettuce, cheese, veggie and dressing)?

$$2 \cdot 3 \cdot 5 \cdot 4 = \boxed{120}$$

2. The Gaussians have 12 freshmen, 10 sophomores, 14 juniors and 15 seniors on the team. How many ways can the coaches pick one person per grade level to compete at State?

$$12 \cdot 10 \cdot 14 \cdot 15 = \boxed{25,200}$$

3. How many six letter "words" can be made with the letters in the word "hockey"?

$$6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1 \quad (6!)$$

$$\boxed{720}$$

4. How many ways can eight students be seated in the five front row seats of a concert?

$$\underline{8} \cdot \underline{7} \cdot \underline{6} \cdot \underline{5} \cdot \underline{4} = \boxed{6720}$$

5. Two marbles are randomly selected (without replacement) from a bag containing 10 blue and 8 red marbles.
- a. What is the probability that 2 red marbles are selected?
- b. What is the probability that 1 red marble and then 1 blue marble is selected?

$$\frac{8}{18} \cdot \frac{7}{17} = \frac{28}{153} \text{ or } .183$$

$$\frac{8}{18} \cdot \frac{10}{17} = \frac{40}{153} \text{ or } .26$$

6. A card is randomly selected from a standard deck of cards.

- a. What is the probability that it is an ace OR a king?

$$\frac{4}{52} + \frac{4}{52} = \frac{8}{52} = \boxed{15\%}$$

- b. What is the probability that the card is either a heart OR a club?

$$\frac{13}{52} + \frac{13}{52} = \frac{26}{52} = \boxed{50\%}$$

- c. What is the probability that you pull a heart AND THEN a spade? (Without replacement).

$$\frac{13}{52} \cdot \frac{13}{51} = \frac{169}{21052} = \boxed{0.47\%}$$

- d. What is the probability that you pull a red card and then a black card? (Without replacement)

$$\frac{13}{52} \cdot \frac{13}{51} = \frac{169}{21052} = \boxed{0.47\%}$$

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7. George is conducting an experiment to determine if his prediction about how many times a single, fair-sided die will land on each side is accurate. He rolls the die 100 times and logs each roll in the table below.

Outcome	Frequency
1	16
2	20
3	22
4	10
5	18
6	14
Total	100

- a. Find the experimental probability of rolling a 5.

$$\frac{18}{100} = \boxed{.18}$$

- b. Find the theoretical probability of rolling a 5.

$$\boxed{\frac{1}{6}}$$

- c. Using the experimental probability, how many times would you expect to roll a 2 if you rolled the die 500 times.

$$\frac{20}{100} = .2 \times 500 = \boxed{100}$$

- d. Using the theoretical probability, how many times would you expect to roll a 2 if you rolled the die 500 times.

$$\frac{1}{6} \times 500 = \boxed{83.33}$$

- e. Why is there a difference between the theoretical and experimental probabilities in examples a-d?

NOW...
GO BACK TO YOUR
-NOTES
-HOMEWORK
-CLASS ACTIVITIES AND
RE-DO/PRACTICE PROBLEMS. 😊