

Name KEY Date _____ Hour _____

PROBABILITY REVIEW FOR QUIZ #1

Algebra 1



LEAVE ALL ANSWERS AS A SIMPLIFIED FRACTION

1. You are getting a new car for graduation. You can choose black, white, silver, red, or blue. You can get leather or fabric interior. You can have either two doors or four doors. How many different cars do you have to choose from?

$$5 \cdot 2 \cdot 2 = \boxed{20}$$

2. How many different outfits can you choose from if you have 6 sweaters, 4 pairs of pants, 10 pairs of socks, 5 pairs of shoes, and 3 jackets?

$$6 \cdot 4 \cdot 10 \cdot 5 \cdot 3 = \boxed{3,600}$$

3. How many different 7-digit phone numbers can be formed if the first 3 digits cannot be repeated and the rest of the digits can be any number?

$$10 \cdot 9 \cdot 8 \cdot 10 \cdot 10 \cdot 10 \cdot 10 = \boxed{7,200,000}$$

4. How many 5-character passwords can be formed if the first 2 characters are non-repeating digits and the last 3 characters are non-repeating letters?

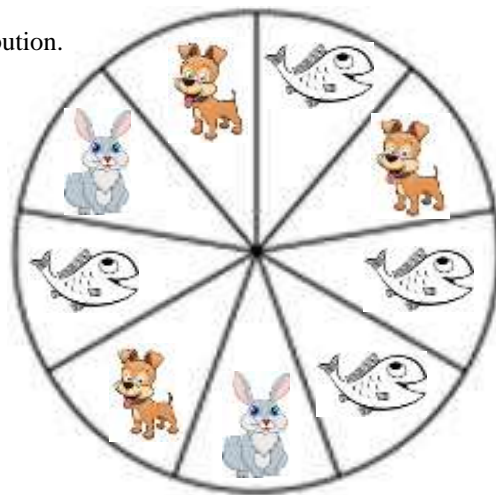
$$10 \cdot 9 \cdot 26 \cdot 25 \cdot 24 = \boxed{1,404,000}$$

5. Using the letters in the word "SPRING", how many five-letter "words" can be made if letters cannot be repeated?

$$6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 = \boxed{720}$$

6. The spinner to the right is spun 54 times. The following table shows the animal distribution.

RABBIT	DOG	FISH
8	20	26



What is the **theoretical** probability that:

a) you land on a rabbit? $\boxed{\frac{2}{9}}$

b) you land on a dog? $\frac{3}{9} = \boxed{\frac{1}{3}}$

What is the **experimental** probability that:

c) you land on a fish? $\frac{26}{54} = \boxed{\frac{13}{27}}$

d) you land on a rabbit? $\frac{8}{54} = \boxed{\frac{4}{27}}$

7. Billy has a stack of playing cards consisting of 5 clubs, 7 spades, and 8 hearts. If he selects a card at random from this stack, what is the probability that it is:

a) a heart? $\frac{8}{20} = \boxed{\frac{2}{5}}$

b) a spade or a club? $\frac{12}{20} = \boxed{\frac{3}{5}}$

20 total

8. Tommy has a ⁵² standard deck of playing cards. He picks one card out of the deck. What is the probability that it is a face card? ^{J, Q, K}
- $$\frac{12}{52} = \frac{3}{13}$$
9. Lizzy has a standard deck of playing cards. She picks one card out of the deck. What is the probability that it is a 3 or a Queen?
- $$\frac{8}{52} = \frac{2}{13}$$
10. Twenty-six alphabet cards lettered A to Z are placed in a hat. One letter is randomly chosen and turns out to be a J. A second letter is chosen without putting the first card back and it turns out to be a T. If that card is also left out of the hat, what is the probability that the third letter chosen will be a P?
- $$\frac{1}{24}$$

11. A single die is rolled. What is the probability that the die lands on:

a) an even number?

$$\frac{3}{6} = \frac{1}{2}$$

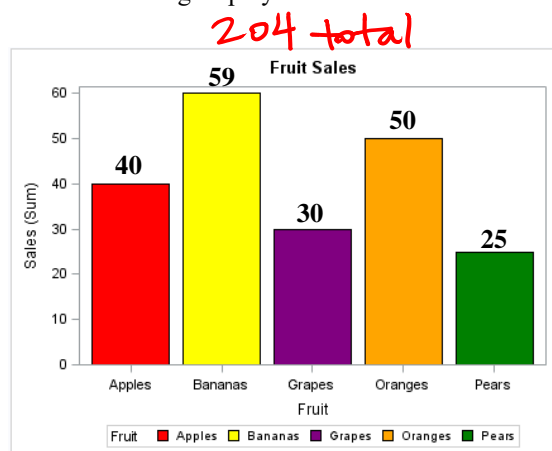
b) a 4?

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

c) an 8?

$$0$$

12. The following display illustrates the number of sales of fruit at a farmer's market.



a) Is this experimental or theoretical probability?

b) What is the probability that you select a person who bought oranges?

$$\frac{50}{204} = \frac{25}{102}$$

c) What is the probability that you select a person who bought bananas or pears? $59 + 25 = 84$

$$\frac{84}{204} = \frac{7}{17}$$

d) If all 2,000 people who attended the farmer's market in June were considered, how many people would you expect to have purchased grapes?

$$\frac{30}{204} (2,000) \approx 294 \text{ people}$$

An ice cream shop offers three sizes of sundae – small, medium, and large; two types of sprinkles – chocolate and rainbow; and three types of cookies – chocolate chip, oreos, and gingersnaps.

- 13) How many possible combinations of sundae with sprinkles and cookies are there?

$$3 \cdot 2 \cdot 3 = 18$$

- 14) If your friend orders a random sundae, what is the probability that it is a large sundae with sprinkles and oreos?

$$\frac{1}{\text{size}} \cdot \frac{2}{\text{spr}} \cdot \frac{1}{\text{cook.}} = \frac{1}{18}$$

$$\frac{1}{18} = \frac{1}{18}$$

- 15) If your friend orders a random sundae, what is the probability that it is a sundae with rainbow sprinkles and cookies?

$$\frac{3}{\text{size}} \cdot \frac{1}{\text{spr}} \cdot \frac{3}{\text{cook.}} = \frac{9}{18} = \frac{1}{2}$$

$$\frac{9}{18} = \frac{1}{2}$$