Name: Key

Date: _____

Day 9: Practice

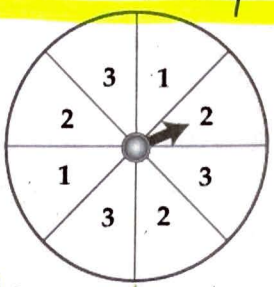
7 Regulars

OR → ADD

AND → MULTIPLY

Unit 9 Probability Practice

#1-6 Use the spinner below to find the probability of the following events.



1) P (1) = $\frac{2}{8}$

2) P (2 or 3) = $\frac{3}{8} + \frac{3}{8} = \frac{6}{8} = \frac{3}{4}$

3) P (< 4) = 1 (ALL #s are less than 4)

4) P (not 3) = $\frac{5}{8}$ (1 and 2)

If this spinner is spun twice find the probability of the following events:

5) P (1, 3) = $\frac{3}{32}$ ($\frac{2}{8} \cdot \frac{3}{8}$)

6) P (2, odd number) = $\frac{15}{64}$ (1 and 3; $\frac{3}{8} \cdot \frac{5}{8}$)

★Independent

★Multiply

#7-10 An ice-cream shop offers two size sundaes: small and large and four flavors: vanilla, chocolate, mint and strawberry.

7) Make a tree diagram.

8) List the sample space:

{SmV, SmC, SmM, SmS, LV, LC, LM, LS}

9) How many outcomes are possible? 8

10) Find the probability of getting a large sundae. $\frac{4}{8}$

11) A school menu lists two soups, three main dishes, three desserts, and four drinks. How many different meals consisting of one soup, one main dish, one dessert, and one drink are possible?

★ Fundamental Counting Principle

$2 \cdot 3 \cdot 3 \cdot 4 =$ 72 outcomes

$5+2+10+3=20$

Total: 20 jellybeans

#12-13 A jar contains 5 green, 2 blue, 10 black and 3 red jellybeans.

12) If Amy chooses a jellybean at random, **replaces it**, and then chooses another jellybean.

★ Independent ★ Total DOESN'T change

a) What is the probability that she chooses a black jellybean and then a green jellybean?

P (black, green) = $\frac{10}{20} \cdot \frac{5}{20} = \boxed{\frac{1}{8}}$

b) What is the probability that she chooses two red jellybeans?

P (red, red) = $\frac{3}{20} \cdot \frac{3}{20} = \boxed{\frac{9}{400}}$

13) If Amy chooses a jellybean at random, **does not replace it**, and then chooses another jellybean.

★ Dependent ★ Total CHANGES

a) What is the probability that she chooses a black jellybean and then a green jellybean?

P (black, green) = $\frac{10}{20} \cdot \frac{5}{19} = \boxed{\frac{5}{38}}$

b) What is the probability that she chooses two red jellybeans?

P (red, red) = $\frac{3}{20} \cdot \frac{2}{19} = \boxed{\frac{3}{190}}$ ← one red was already chosen, so there's 1 less

#14-3 Determine if the following events are an example of an **independent** or **dependent** event.

14) Mark has 14 coins. He takes one at random, puts it back and then picks another coin at random.

Independent

15) Ashley has a jar of cookies: 5 chocolate chip, 4 oatmeal raisin, and 3 rainbow. She randomly picks a cookie, eats it and then selects another one.

Dependent

16) Dan spins a spinner and tosses a coin.

Independent

17) A jar has 4 red gumballs, 2 green gumballs and 3 yellow gumballs. Dan picks a gumball at random eats it and then picks a second gumball. What is the probability that he will pick a yellow and then a green gumball? ★ Dependent

Total: $4+2+3=9$

P (yellow, green) = $\frac{3}{9} \cdot \frac{2}{8} = \boxed{\frac{1}{12}}$

18) A coin is tossed and a letter is selected form the word **COFFEE**. Find the probability of landing on heads and selecting a E. ★Independent

$$\frac{1}{2} \cdot \frac{2}{6} = \boxed{\frac{1}{6}}$$

19) A bag of marbles has 3 black, 6 blue, 2 white and 2 orange marbles. Jen picks a marble, replaces it, and then picks a second marble. What is the probability of picking a black and then a blue marble?

Total: 3+6+2+2 = 13

P (white, blue) = ★Independent

$$\frac{2}{13} \cdot \frac{6}{13} = \boxed{\frac{12}{169}}$$

20) The school cafeteria offers five sandwich choices, four desserts, and three beverages. How many different meals consisting of one sandwich, one dessert, and one beverage can be ordered?

★Fundamental Counting Principle

$5 \cdot 4 \cdot 3 =$ **60 different meals**

21) A bag of marbles has 3 black, 6 blue, 2 white and 2 orange marbles. Jen picks a marble, does not replace it, and then picks a second marble. What is the probability of picking two orange marbles?

Total: 3+6+2+2 = 13

P (orange, orange) = ★dependent

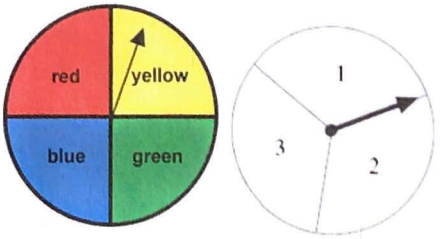
$$\frac{2}{13} \cdot \frac{1}{12} = \boxed{\frac{1}{78}}$$

22) You have six game chips in your pocket, two red, one yellow, one green, and two blue. You select a game chip at random, do not replace it, then select a second game chip. What is the probability of selecting 2 blues? ★dependent

Total: 6

$$\frac{2}{6} \cdot \frac{1}{5} = \boxed{\frac{1}{15}}$$

#23-24 Emily spins the spinners shown below.



★Independent

23) Find the probability of spinning the spinners and landing on red and a 3.

$$\frac{1}{4} \cdot \frac{1}{3} = \boxed{\frac{1}{12}}$$

24) Find the probability of spinning the spinners and landing on yellow and an odd number.

$$\frac{1}{4} \cdot \frac{2}{3} = \boxed{\frac{1}{6}}$$

25) A jar contains 5 blue marbles, 7 yellow marbles and 8 green marbles. What is the probability of randomly choosing a green marble, replacing it and then choosing another green marble?

★ Independent

5+7+8 → Total: 20 marbles

P (green, green) = $\frac{8}{20} \cdot \frac{8}{20} = \boxed{\frac{4}{25}}$

26) A number cube labeled one through six is rolled and a letter is selected form the word **GIRAFFE**. Find the probability of landing on a 3 and selecting a F. ★ Independent

$\frac{1}{6} \cdot \frac{2}{7} = \boxed{\frac{1}{21}}$

27) An experiment consists of rolling a fair number cube. Find the probability of each event.

Sides of a # cube:

1 2 3 4 5 6

a) P (9) = $\frac{0}{}$

b) P (not 6) = $\frac{5}{6}$

c) P (less than 5) = $\frac{4}{6}$

d) P (1 or even) = $\frac{2}{3}$

$\frac{1}{6} + \frac{3}{6}$

e) P (at least 3) = $\frac{4}{6}$

3 or more

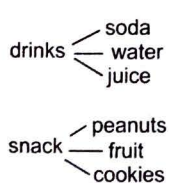
28) At the school surf club meeting, there were three drinks you could choose from: **soda, juice or water.** There were three snacks you could choose from: **peanuts, fruit or cookies**. Each student may only have one drink and one snack.

★ Fundamental Counting Principle

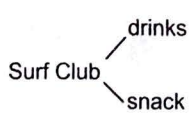
3·3 = 9

Which of the following tree diagrams shows all of the possible outcomes?

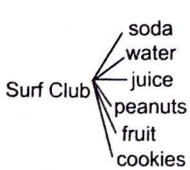
A



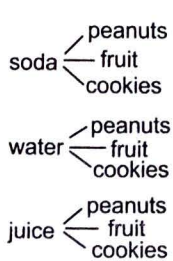
B



C



D



← Shows 9 outcomes