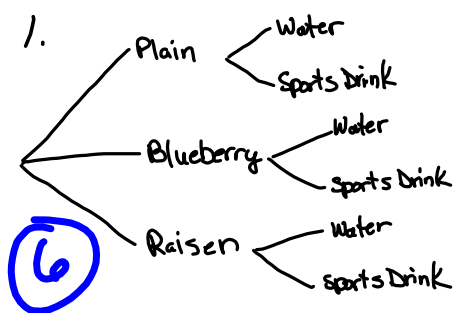


Homework Answers

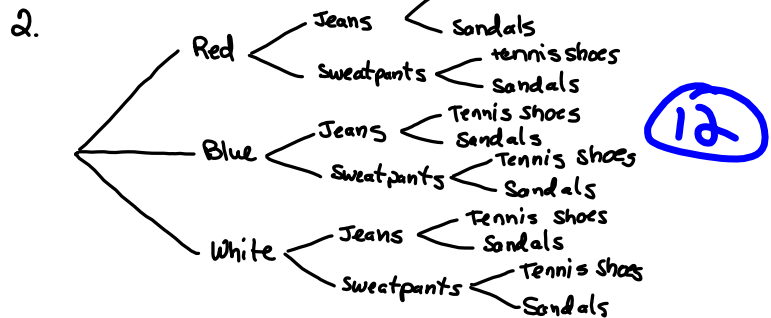


1. $4 \times 2 \times 8 = 64$

2. $5 \times 4 \times 3 \times 2 \times 1 = 120$

3. $2 \times 4 \times 7 = 56$

4. $2 \times 6 \times 3 = 36$



5. $10 \times 10 \times 10 \times 10 = 10,000$

6. $26 \times 26 \times 26 \times 26 \times 10 = 4,569,760$

7a. $26 \times 26 \times 26 \times 10 \times 10 \times 10 \times 10 = 175,760,000$

b. $26 \times 25 \times 24 \times 10 \times 10 \times 10 \times 10 = 156,000,000$

How to Count

- Fundamental Counting Principle (Part 2: AND)
- If event A has m outcomes and independent event B has n different outcomes, then the number of outcomes in event A and B is $m*n$.
- AND \rightarrow Multiply And = \wedge

Similarly, we used in the Counting Principle yesterday:

First choice AND second choice

of options for first choice X # of options for second choice.

How to Count (Cleverly!)

- Fundamental Counting Principle (Part 1: OR)
- If event A has m outcomes and event B has n different outcomes, then the number of outcomes in event A or B is $m + n$.
- OR \rightarrow Add Or = \cup
OR \rightarrow includes Both (A or B or both)

Basic Probability:

$$P(\text{Event}) = \frac{\text{\# of favorable outcomes}}{\text{Total \# of possible outcomes}}$$

Cards in a deck....

- There are a total of 52 cards in a deck. (We do not count jokers)
- 26 are red and 26 are black.
- There are 4 suits. They are:



- Hearts, Spades, Diamonds, Clubs
- There are 4 cards of each number.
 - The face cards are: King, Queen, Jack
 - There are a total of 12 face cards. 3×4
 - Ace is not usually considered a face card.

13 cards per suit

From a deck of cards, picking 1 card, how many ways can you pick:

a) a 7⁺ or a Queen?
 $4 + 4 = 8$

P(7 or Queen)?
 $8/52$

b) a diamond⁺ or a spade?
 $13 + 13 = 26$

P(Diamond or Spade)?
 $26/52$

* c) P(a King⁺ or a diamond)? (More in Ch.13)

$$4 + 13 - 1 = 16$$

K ♦ K♦

$$P(K \text{ or } \heartsuit) = 16/52$$

From a deck of cards, picking 2 cards,

With Replacement:

a) P(7^x and Queen)?

$$\frac{4}{52} \times \frac{4}{52} = \frac{16}{2704}$$

b) P(diamond and spade)?

$$\frac{13}{52} \times \frac{13}{52} = \frac{169}{2704}$$

c) P(red and club)?

$$\frac{26}{52} \times \frac{13}{52} = \frac{338}{2704}$$

$$\text{or } \frac{1}{2} \times \frac{1}{4} = \frac{1}{8}$$

d) P(7 and 7)?

$$\frac{4}{52} \times \frac{4}{52} = \frac{16}{2704}$$

Without Replacement:

$$\frac{4}{52} \cdot \frac{3}{51} = \frac{12}{2652}$$

$$\frac{13}{52} \times \frac{12}{51} = \frac{156}{2652}$$

$$\frac{26}{52} \times \frac{12}{51} = \frac{312}{2652}$$

$$\frac{4}{52} \times \frac{3}{51} = \frac{12}{2652}$$

Name: _____

Date _____

Topic : Probability Word Problems- Worksheet 2

What is the probability?

1. Jolly is playing cards with her friend when she draws a card from a pack of 30 cards numbered from 1 to 30. What is the probability of drawing a number that is square? $\frac{5}{30}$
1 4 9 16 25
2. Each of the letters in the word APPLE is on separate cards, face down on the table. If you pick a card at random, what is the probability that its letter will be A or L? $\frac{2}{5}$
3. A magician showed a magic trick where he picked one card from a standard deck. Determine what the probability is that the card will be a black queen card? $\frac{2}{52}$
4. A bag contains five red marbles, fifteen black marbles, and ten white marbles. You pick one without looking. What is the probability that the marble will be either red OR white? $\frac{5+10}{30} = \frac{15}{30}$
5. You ask a friend to think of a number two to eleven. What is the probability that his number will be 5? $\frac{1}{10}$
6. Each of letters in the word OPPORTUNITIES are on separate cards, face down on the table. If you pick a card at random, what is the probability that its letter will be O or I? $\frac{4}{13}$
7. You roll a SIX sided die. What is the probability that the value of the roll will be six? $\frac{1}{6}$
8. A bag contains 6 purple sticks, 2 orange sticks, and 4 black sticks and you ask a friend to pick one without looking. What is the probability that the stick will be purple? $\frac{6}{12}$
9. You think of a number from the first thirty negative integers. What is the probability that the integer chosen will be divisible by 5? $\frac{6}{30}$
-5, -10, -15, -20, -25, -30
10. When a six sided die is rolled then what is the probability that the number rolled will be 4? $\frac{1}{6}$



Homework:

Like class - Worksheet #3

Pkt Pg. 26