

Algebra 1 0.11 Simple Probability and Odds

Find the probability of simple events *How likely is it?*
Find the odds of simple events

probability

→ sample space *all the ways*
→ tree diagram *organizes info*

Fundamental Counting Principle

odds

" number cubes *"* (dice)

complementary events

Ex. 1

A number cube (die) is rolled. Find each probability.

a. Rolling a 1 or a 5

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

b. Rolling an even number

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

Complements:

$$P(1) + P(\text{not } 1) =$$

Ex. 2

A bowl contains 5 red chips, 7 blue chips, 6 yellow chips, and 10 green chips. One chip is randomly drawn.

a. $P(\text{blue})$

$$\frac{7}{28} = \frac{1}{4}$$

b. $P(\text{red or yellow})$

$$\frac{11}{28}$$

c. $P(\text{not green})$

$$\frac{18}{28} = \frac{9}{14}$$

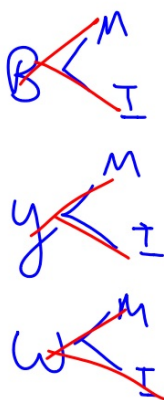
Tree diagram: counting possible outcomes

3 coats

2 hats

Ex. 3

School baseball caps come in blue, yellow or white. The caps have either the school mascot or the school's initials. Use a tree diagram to determine the number of different caps possible.



= 6
Number

B-M
B-I
Y-M
Y-I
W-M
W-I

Sample
Space

Fundamental Counting Principle

Ex. 4

An ice cream shop offers one, two, or three scoops of ice cream from among 12 different flavors.

The ice cream can be served in a wafer cone, a sugar cone, or a dish. How many choices are possible?

3

$$3 \cdot 12 \cdot 3 = 108$$

FCP: Fundamental counting principle

Jimmy is creating a 3-digit password for his login on the school website. The password can include any digit from 0-9 but the digits may not repeat. How many possible 3-digit passwords are there?

$$P(6) = \frac{1}{6}$$

Success: fail
1:5

The odds of an event occurring is the ratio that compares the number of ways and event can occur (success) to the number of ways it cannot occur (failure).

Ex. 5

1 2 3 4 5 6

A number cube is rolled.

Find the odds of rolling a number less than 3.

$$2:4 = 1:2$$

$\frac{2}{4} \rightarrow \frac{1}{2}$

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