

13.1 Find Probabilities and Odds

TEKS 8.11.B

Before

You made organized lists and tree diagrams.

Now

You will find sample spaces and probabilities.

Why?

So you can find the likelihood of an event, as in Example 2.



Key Vocabulary

- outcome
- event
- sample space
- probability
- odds

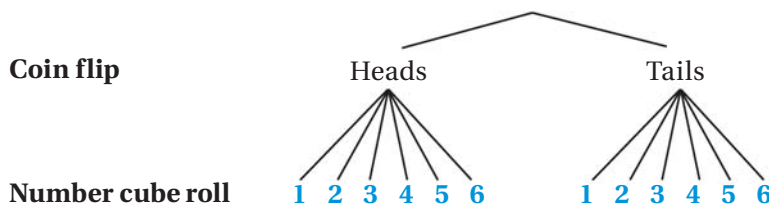
A possible result of an experiment is an **outcome**. For instance, when you roll a number cube there are 6 possible outcomes: a 1, 2, 3, 4, 5, or 6. An **event** is an outcome or a collection of outcomes, such as rolling an odd number. The set of all possible outcomes is called a **sample space**.

EXAMPLE 1 Find a sample space

You flip a coin and roll a number cube. How many possible outcomes are in the sample space? List the possible outcomes.

Solution

Use a tree diagram to find the outcomes in the sample space.



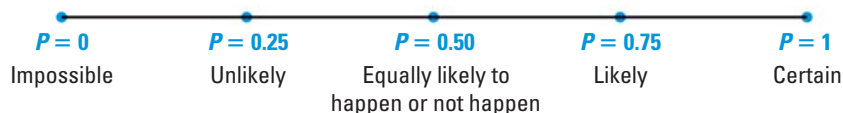
The sample space has 12 possible outcomes. They are listed below.

- Heads, 1 Heads, 2 Heads, 3 Heads, 4 Heads, 5 Heads, 6
Tails, 1 Tails, 2 Tails, 3 Tails, 4 Tails, 5 Tails, 6

GUIDED PRACTICE for Example 1

1. You flip 2 coins and roll a number cube. How many possible outcomes are in the sample space? List the possible outcomes.

PROBABILITY The **probability of an event** is a measure of the likelihood, or chance, that the event will occur. Probability is a number from 0 to 1 and can be expressed as a decimal, fraction, or percent.



REVIEW TREE DIAGRAMS

For help with tree diagrams, see p. 931.