YOUR TURN

3. A hat contains pieces of paper marked with the numbers 1 through 16. Tell whether picking an even number is impossible, unlikely, as likely as not, likely, or certain. Tell whether the probability is 0, close to 0, $\frac{1}{2}$, close to 1, or 1.

_____

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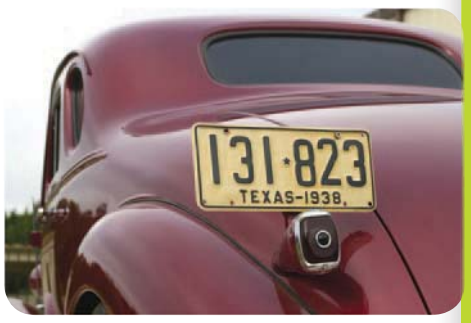
Finding Probability

The **sample space** is a set of all possible outcomes for an event. A sample space can be small, such as the 2 outcomes when a coin is flipped. Or a sample space can be large, such as the possible number of Texas Classic automobile license plates. Identifying the sample space can help you calculate the probability of an event.



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Probability of An Event

$$P(\text{event}) = \frac{\text{number of times the event occurs}}{\text{total number of equally likely possible outcomes}}$$

EXAMPLE 2

Real World

TEKS 7.6.A

What is the probability of rolling an even number on a standard number cube?

STEP 1 Find the sample space for a standard number cube.

{1, 2, 3, 4, 5, 6} *There are 6 possible outcomes.*

STEP 2 Find the number of ways to roll an even number.

2, 4, 6 *The event can occur 3 ways.*

STEP 3 Find the probability of rolling an even number.

$$P(\text{even}) = \frac{\text{number of ways to roll an even number}}{\text{number of faces on a number cube}}$$

$$= \frac{3}{6} = \frac{1}{2}$$ *Substitute values and Simplify.*

The probability of rolling an even number is $\frac{1}{2}$.

Math Talk
Mathematical Processes
How could you show the sample space as a tree diagram?