Guiding question: How do you determine probability of an event?

P. 54   Probability

p. 54

Definition. The <u>Theoretical Probability</u> of an event is the ratio of the number of ways that the event can occur to the total number of equally likely outcomes in the sample space.

$$P(event) = \frac{number\ of\ times\ the\ event\ occurs}{number\ of\ trials}$$

Examples.
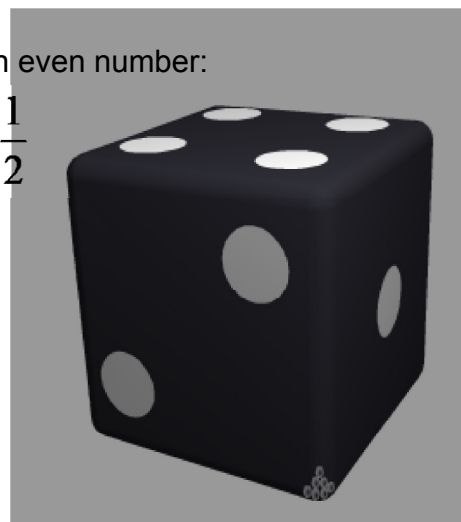
1)Sandy rolls a dice. The theoretical probability that Sandy rolls an even number:

$$P(even) = \frac{number\ of\ ways\ to\ roll\ an\ even\ number}{number\ of\ possible\ outcomes} = \frac{3}{6} = \frac{1}{2}$$

a.)P(odd)= $\dfrac{3}{6}$ = $\boxed{\dfrac{1}{2}}$

b.)P(greater than 2)= $\dfrac{4}{6}$ = $\boxed{\dfrac{2}{3}}$

c.)P(5 or 6) = $\dfrac{2}{6}$ = $\boxed{\dfrac{1}{3}}$

2) If Jorge spins the spinner shown, what is the probability that the arrow lands in:

a.) $P(yellow) =$ $\dfrac{1}{4}$

b.) $P(blue\ or\ green) =$ $\dfrac{2}{4} = \dfrac{1}{2}$

red | yellow
blue | green
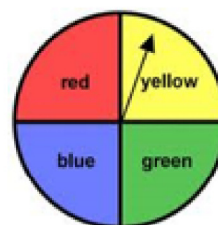
3) If Heidi flips a coin, what is the probability that it lands on tails?

$P(tails) =$ $\dfrac{1}{2}$
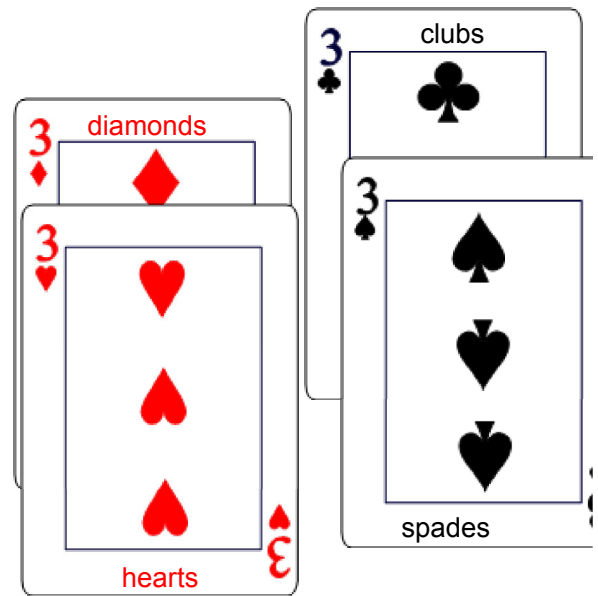
A 2 34 .... 10 J Q K

4) If a standard deck of cards is used, what are the probabilities of the following outcomes?
   (hearts & diamonds are red – clubs & spades are black)

   a. You draw an even number.

   $5 \cdot 4 = 20$

   $\dfrac{20}{52}$

   b. You draw a face card.

   $\dfrac{12}{52}$

   c. You draw a black 4.

   $\dfrac{2}{52}$

   d. You draw a red multiple of 3.

   $\dfrac{6}{52}$

Example set of 52 poker playing cards

| Suit	Ace	2	3	4	5	6	7	8	9	10	Jack	Queen	King
Clubs	♣												
Diamonds	♦												
Hearts	♥												
Spades	♠												