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

P. 54-55   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.**

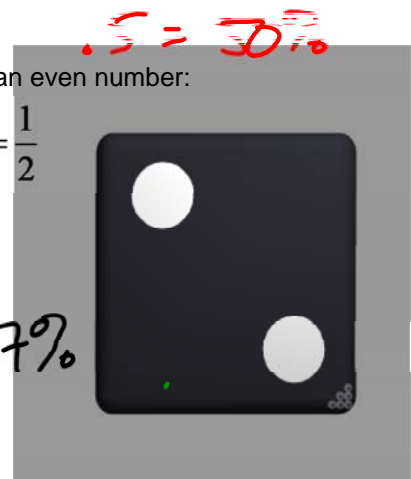$$P(event) = \frac{number\ of\ times\ the\ event\ occurs}{number\ of\ trials}$$

Examples.

.5 = 50%

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)= $\frac{3}{6} = \frac{1}{2} = .5 = 50\%$

b.)P(greater than 2)= $\frac{4}{6} = \frac{2}{3} = .\overline{6} \approx 67\%$

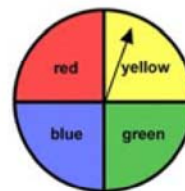c.)P(5 or 6) $\frac{2}{6} = \frac{1}{3} = .\overline{3} \approx 33\%$

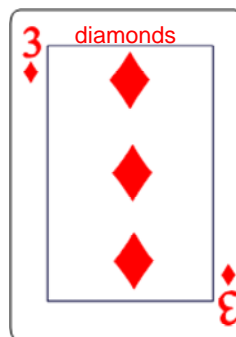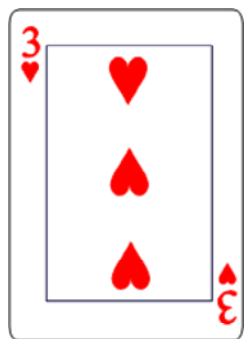2) If Jorge spins the spinner shown, what is the probability that the arrow lands in:

a.) $P(yellow) =$ $\frac{1}{4} = .25 = 25\%$

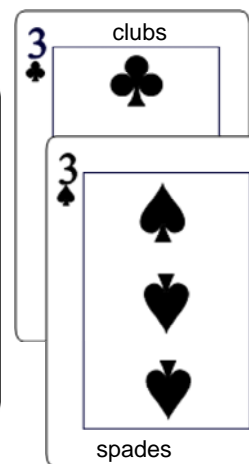b.) $P(blue\ or\ green) =$ $\frac{2}{4} = \frac{1}{2} = .5 = 50\%$

3) If Heidi flips a coin, what is the probability that it lands on tails?

$P(tails) =$ $\frac{1}{2} = .5 = 50\%$

clubs

diamonds

spades

hearts

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.   b. You draw a face card.

$$\frac{20}{52} = \frac{5}{13} = .38 = 38\%$$ $$\frac{12}{52} = \frac{3}{13} = .23 = 23\%$$

c. You draw a black 4.   d. You draw a red multiple of 3.

$$\frac{2}{52} = \frac{1}{26} = .04 = 4\%$$ $$\frac{6}{52} = \frac{3}{26} = .12 = 12\%$$

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	♠												

Assignment-11.2 Worksheet