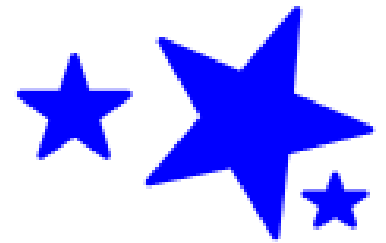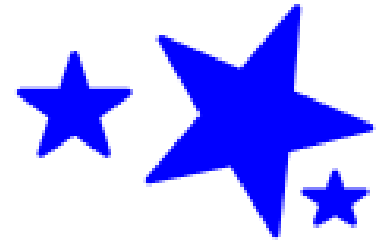# 2 - 6
Simple Probability

probability: ratio of favorable outcomes to total outcomes

*** fraction, decimal, or percent
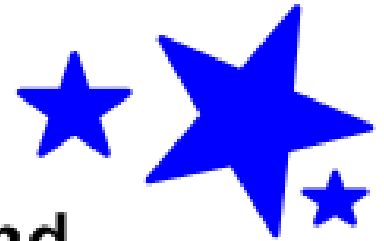
sample space: list of all possible outcomes

Ex: Find the probability of rolling an even number on a die.
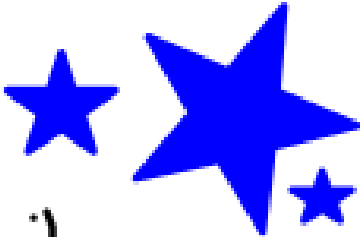
$$\frac{3}{6} = \boxed{\frac{1}{2}}$$

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

a.) P(blue) $\dfrac{7}{28} = \left(\dfrac{1}{4}\right)$

b.) P(green or yellow) $\dfrac{16}{28} = \left(\dfrac{4}{7}\right)$

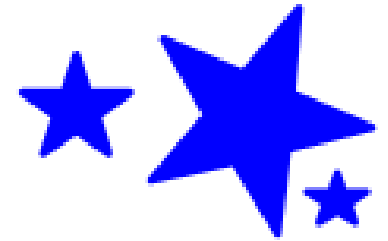c.) P(not green) $\dfrac{18}{28} = \left(\dfrac{9}{14}\right)$

equally likely: when there are n outcomes, the probability of each is $\frac{1}{n}$

Example: rolling a die

6 outcomes
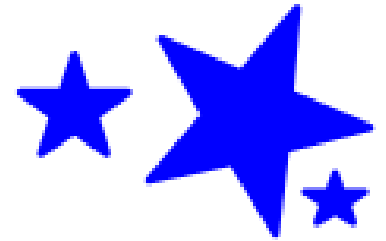
each # $\rightarrow \frac{1}{6}$

***Probability = 0

never going to happen

***Probability = 1

will <u>always</u> happen
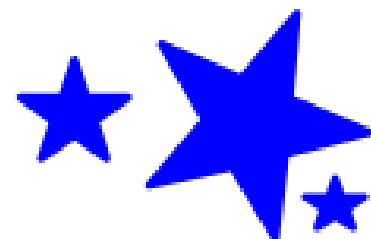
odds: favorable outcomes to unfavorable outcomes

Ex: odds of rolling a number less than 3
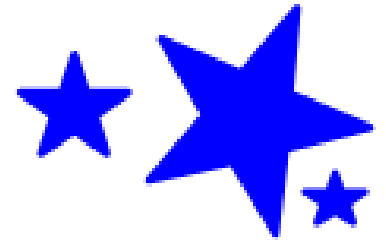
$$2:4$$

$$(1:2)$$

Ex: A card is selected from a standard deck of 52 cards. What are the odds against selecting a 3?

$$48:4 \qquad 24:2 \qquad \boxed{12:1}$$

Ex: The probability of rain tomorrow is 40%. What are the odds?

$$\frac{40}{100} \qquad 40:60$$

$$\boxed{2:3}$$

Homework:

p. 98 #1-11 all, 14-32 even