Chapter 10.2 HW qz.
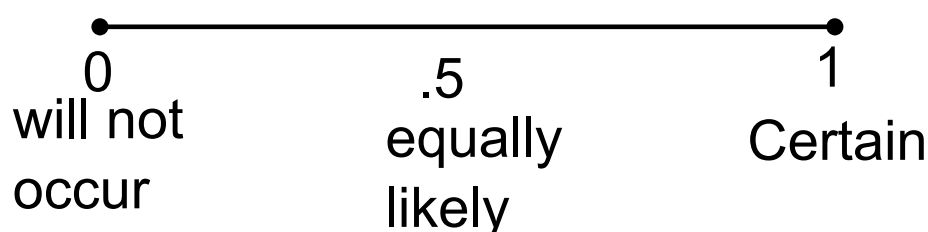
$$_nP_r = \frac{n!}{(n-r)!} \qquad _nC_r = \frac{n!}{r!(n-r)!}$$

Find the number of possible 5-card hands that contain 5 hearts or 5 dimonds.

Expand: $(x+2)^5$

Chapter 10.3: Define and Use Probability

The probability of an event is a number from 0 to 1

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0              .5              1
will not       equally        Certain
occur          likely
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$$P(A)= \frac{\text{Number of favorable outcomes}}{\text{Total number of outcomes}}$$

You roll a standard six-sided die. Find the probability of (a)rolling a 5 and (b)rolling an even number.

$$P(5) = \frac{1}{6}$$

$$P(even \#) = \frac{3}{6} = \frac{1}{2}$$

A community center hosts a talent contest for local musicians. On a given evening, 7 musicians are scheduled to perform. The order in which the musicians perform is randomly selected during the show.

What is the probability that the musicians perform in alphabetical order by their last manes?(no same last name)

$$_7P_7 \qquad \frac{7 \quad 6 \quad 5 \quad 4 \quad 3 \quad 2 \quad 1}{} \qquad \frac{1}{5040}$$

You are friends with 4 of the musicians. What is the probability that the first 2 preformer are your friends?

$$\frac{_4C_2}{_7C_2} = \frac{6}{21} = \frac{2}{7}$$

Odds is another measure of likelihood that an event will occur. Measured in favor and against.

For Event : Against Event

$$\frac{1}{5040} \rightarrow 1:5039$$

$$\frac{1}{2} \rightarrow 1:1$$

$$\frac{10}{11} \rightarrow 10:1$$

~~$10:11$~~

A card is drawn from a standard deck of 52 cards. Find (a) the odds in favor of drawing a 10 and (b) the odds against drawing a club.

$$\frac{4}{52} = \frac{1}{13} = 1:12$$

$$\frac{39}{52} = \frac{3}{4} = 3:1$$

Experimental Probability:

    Probability from the outcome of trials in a real life situation.

$$\frac{\text{Number of favorable trials}}{\text{Total number of trials}}$$
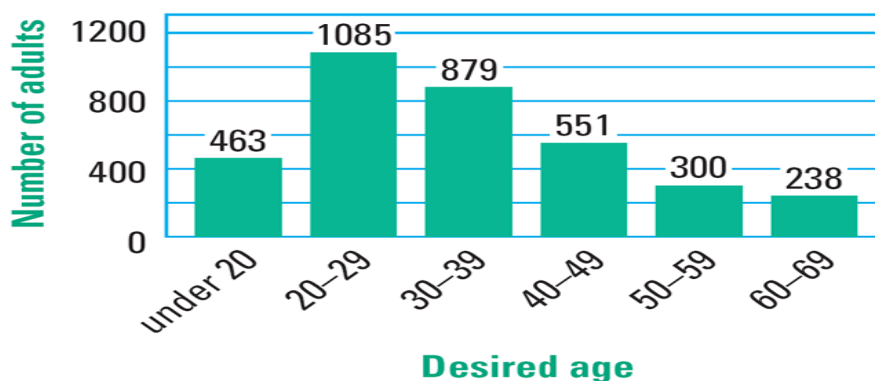
Theoretical Probability:

    In theory what the probability should be.

Geometric Probability:

    using geometric measurements as ratios.

The bar graph shows how old adults in a survey would choose to be if they could choose any age. Find the experimental probability that a randomly selected adult would prefer to be at least 40 years old.

$$\frac{1089}{3516}$$

You throw a dart at the square board shown. Your dart is equally likely to hit any point inside the board. Are you more likely to get 10 points or 0 points?

$$P(10) = \frac{\pi(3)^2}{18^2}$$

$$= .087$$

$$P(0) = \frac{(18^2 - \pi 9^2)}{18^2}$$

$$= .215$$

3 in.

10

5

2

0

18 in.
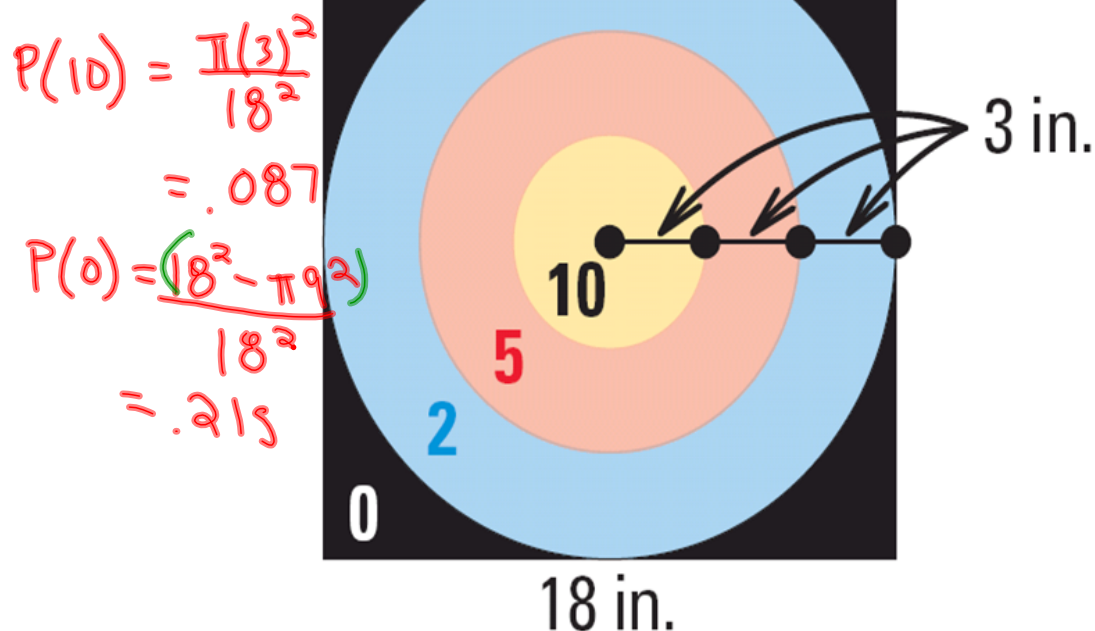
Homework: Chapter 10.3 pg.701
#'s 4-22e,28,30,32,36