

## Ch 3 Probability

Probability: # of favorable outcomes compared to the total # of outcomes.

Ex: What is the probability of rolling a 3 on a 6 sided die?

# of favorable = 1

# of outcomes total = 6

so probability is 1:6 or  $\frac{1}{6}$

ODDS: # of favorable outcomes compared to the # of unfavorable outcomes.

Ex: what are the odds of rolling a 3 on a 6 sided die?

# of favorable = 1

# of unfavorable = 5

odds in favor of rolling a 3

are 1:5 or  $\frac{1}{5}$

Probability from odds and vice versa

Ex: Given odds of an event happening are 3:5, what is the prob. of the event happening?

Ans: # of favorable = 3  
 # of unfavorable = 5  
 $\therefore$  total # of outcomes =  $3+5=8$   
 So, prob = 3:8

| Ex: Given the prob of an event is 2:7, what are the odds in favor of the event?

Ans: # of favorable = 2  
 total # of outcomes = 7  
 $\therefore$  # of unfavorable =  $7-2=5$   
 so, the odds in favor are 2:5

$$1:12 = \frac{1}{12} = \frac{4}{48}$$

$$75\% = \frac{3}{4}$$

$$\underline{\text{ODDS} = 3:1}$$

3R — G

ODDS for G are 3:1

how many G?  $\frac{3}{1} = \frac{9}{3}$

Ex: The probability of winning a game is  $\frac{1}{5}$  what are the odds in favor of winning?

ANS: 1:4 or  $\frac{1}{4}$

Ex: The odds against the soccer team winning its next game are 2:7, what is the probability of the team winning?

ANS: ODDS in favor of team winning are 7:2  
 $\therefore$  probability of winning is  $\frac{7}{9}$

Ex: The weather forecast says there is a 20% chance of flurries today what are the odds in favor of NOT having flurries?

Probability of snow is  $20\% = \frac{20}{100} = \frac{2}{10} = \frac{1}{5}$

Odds in favor of snow are 1:4

Odds of not having snow are 4:1

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