CHAPTER 6--PROBABILITY

ODDS AND PROBABILITY

Legend:

N = Notes—copy this in your notebook

A = Activity—I will be explaining and we will do an activity

G = Game—Time to play a Math Game!

C = Classwork, grab a binder, start now and finish it for homework, look up the worksheet/assignment on MHS

N

Odds and Probability

The odds or the probability of an event tell us the likelihood of an event actually occurring.

The odds will always be written as a ratio.

"Odds for" means the ratio: number of successes : number of failures

"Odds against" means the ratio: number of failures : number of successes

N

The probability of an event is always written as a fraction.

Probability of the Event **Happening** $P(A) = \frac{\text{\# of Outcomes Favourable to Event A}}{\text{Total \# of Possible Outcomes}}$

Probability of the Event **Not Happening** $P(A') = \frac{\text{\# of Outcomes Not Favourable to Event A}}{\text{Total \# of Possible Outcomes}}$

A

Odds of Winning the Lotto Video

https://www.pbslearningmedia.org/resource/mkqed.math.sp.lottery/your-odds-winning-powerball/

N

The relationship between odds and probability:

They are related the same way that a ratio is related to a fraction.

If we have a **ratio of A : B** (ODDS),

the equivalent **fraction** (PROBABILITY) would be $\frac{A}{A+B}$

Copy and Convert the following:

Odds A : B	Probability $\frac{A}{A+B}$
1:2	$\frac{1}{1+2}=\frac{1}{3}$
2:3	$\frac{2}{2+3}=\frac{2}{5}$
16:17	$\frac{16}{16+17}=\frac{16}{33}$
25:2	$\frac{25}{25+2}=\frac{25}{27}$
30:10	$\frac{30}{30+10}=\frac{30}{40}$
8: 1	$\frac{8}{9}$
1: 1	$\frac{1}{2}$
2: 11	$\frac{2}{13}$

Ex. 1 The odds of Mr. Bigntall beating Mr. Shortnthin in a hotdog eating contest are 95 : 4. What is the probability that Mr. Bigntall will win?

$$P(A)=\frac{\text{\# of Outcomes Favourable to Event A}}{\text{Total \# of Possible Outcomes}}$$

$$P(A)=\frac{A}{A+A'}$$
$$=\frac{95}{95+4}$$
$$=\frac{95}{99}$$ is the probability that Mr. Bigntall will win

Ex. 2 What is the probability of drawing a King from a standard deck of 52 cards?

$$P(A)=\frac{\text{\# of Outcomes Favourable to Event A}}{\text{Total \# of Possible Outcomes}}$$

$$P(A)=\frac{\text{\# of Kings}}{\text{\# of Cards}}$$
$$=\frac{4}{52}$$
$$=\frac{1}{13}$$ is the probability of drawing a King

Ex. 3 What are the odds of drawing a Spade from a standard deck of 52 cards?

"Odds for" means the ratio:

number of successes : number of failures

= 13:39 (reduce it)

= 1:3

Ex. 4 The probability of Mr. Miller's Golf Team winning the championship is 3/100. What is the probability they will lose?

$$P(A)=\frac{\text{\# of Outcomes Favourable to Event A}}{\text{Total \# of Possible Outcomes}}$$

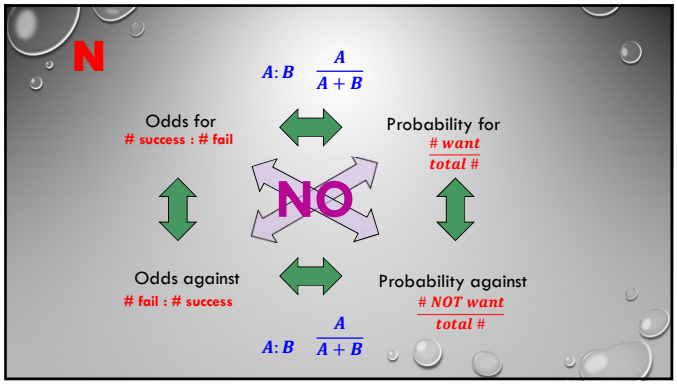
P (losing) = 97/100

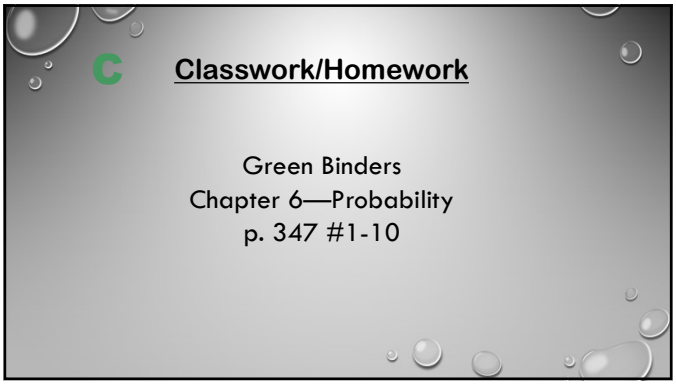
Ex. 5 The probability of Ms. K going out for a run today is 88/100. What are the odds against her going out for a run?

P (for going out) = $\frac{88}{95}$

P (against going out) = $\frac{7}{95}$

Odds (against going out) = 7: 88


N
$A:B$ $\frac{A}{A+B}$
Odds for
success : # fail
Probability for
$\frac{\#\ want}{total\ \#}$
NO
Odds against
fail : # success
Probability against
$\frac{\#\ NOT\ want}{total\ \#}$
$A:B$ $\frac{A}{A+B}$


C
Classwork/Homework
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