

The mean of a random variable represents what you would expect to happen for thousands of trials. It is also called the **Expected Value**. The expected value of a discrete random variable is equal to the **Mean** of the random variable.

Expected Value =
$$E(x) = \sum x \cdot P(x)$$

Ex 7: At a raff	le, 1500 tickets a	re sold for \$2 each for fou	r prizes of \$500, \$250, \$150, and \$75. You
		ected value of your gain?	
X	P(X)	X - P(x)	4 winners
-2	149/1500	-1.995	1500-4=1496 losers
498	1500	. 332	
248	11500	. 165	1 - 1 - 2 -
148	1/1500	.099	Lose \$1.35
73	1500	.049	- Per. - Ticket.
		Z = -1.35	- nonec.

*Although individual probabilities cannot be <u>negative</u> expected value can (and usually is).

 $\underline{\text{TIY 7:}}$ At a raffle, 2000 tickets are sold at \$5 each for 5 prizes of \$2000, \$1000, \$500, \$250, and \$100. You buy one ticket. What is the expected value of your gain?

 $\frac{\chi}{P(x)}$ $\chi \cdot P(x)$

Ex 8: EFHS is holding a raffle to raise money for the senior party. Tickets are \$5 each and only 500 tickets will be sold. The prizes are \$500, \$250, and five people will win \$75. You buy one ticket. Find the expected value of your gain.

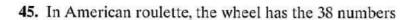
Find the exp	pected value of you	7 winners	
		$X \cdot P(X)$	
-6	493/500	-4.93	500-7=493 losers
496	1500	.99	2.75
117	1/500	. 49	Love \$ 3.31
245	1500		per ficket.
70	5/500	X4.7	for moreo.
		Z= -3.51	
		-2.75	

Pg 204 #45, 46 and the 3 problems on the small sheet.

Statistics	4.1Expected Value	Name:
The senior class tickets at \$10 each expected value of	 First prize is \$2500, second 	e senior party. They are selling 3000 raffle prize is \$1000 and 3 rd prize is \$500. What is the

2) In a raffle, 1000 tickets are sold for \$2 each. One ticket will randomly be selected and the winner will receive a laptop computer valued at \$1200. What is the expected value for a person that buys one ticket?	

3) At a raffle, 10,000 tickets are sold at \$5 each for three prizes valued at \$5000, \$1500, and \$1000. What is the expected value of one ticket?



 $00, 0, 1, 2, \dots, 34, 35,$ and 36

marked on equally spaced slots. If a player bets \$1 on a number and wins, then the player keeps the dollar and receives an additional 35 dollars. Otherwise, the dollar is lost.

