Few things to know:

- Suggestion Box (can be anonymous)
- Lots of group and partner work/activities
- I do lots of random calling on people, so be prepared to answer.
- Try my best to grade by next class, but not always possible
- Stay after school when Mrs. Watkins stays (Tuesday/ Wednesday, with exceptions)
- Feel free to e-mail me anytime with questions

(mwilmert@parkwayschools.net)

Feb 9-10:26 PM

Do Now:

Review: Find the following probabilities

1. Rolling a die and getting an even number.

2. Drawing an Ace from a standard deck of cards.

3. The probability that it will rain is 30%. What is the probability it won't rain? What kind of probability is this?

Feb 28-1:53 PM

# Unit 3 Day 1:
# Discrete Probability Distributions

**(5-1) Probability Distributions**
**(5-2) Expected Value**

Oct 17-9:42 PM

**Random Variable**: a variable whose values are determined by _____.

**RECALL:**

**Discrete Variables**: Variables that can be counted. _____

**Continuous Variables:** _____ or _____ values

Mar 9-2:40 PM

## I. Probability Distributions

Probability Distribution-> consists of the values a _____ can assume and the _____ _____ of the values.

EX: Create a probability distribution for the sum of rolling two dice

| Outcome (X) | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Probability P(X) | | | | | | | | | | | |

Mar 9-2:42 PM

## I. Probability Distributions

Example

You are tossing three coins. Represent the probability distribution

| #of tails X | 0 | 1 | 2 | 3 |
|---|---|---|---|---|
| Probability P(X) | | | | |

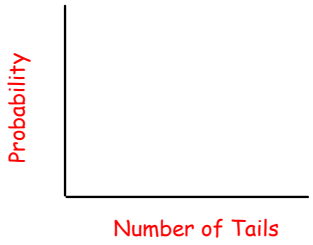
*Think about your sample space first

Mar 9-2:44 PM

I. Probability Distributions Example

Lets graph the previous example.

Probability Distribution for # of Tails




Mar 9-2:47 PM

I. Probability Distributions Example

You have 5 $1 bills, 3 $5 bills, 6 $10 bills, and 1 $20 bill in your pocket.

Create a probability distribution for grabbing one bill from your pocket.

Mar 7-8:47 AM

I. Probability Distributions Example

A car dealership keeps track of the # of cars it rents and for how long. Construct a probability distribution and Graph.

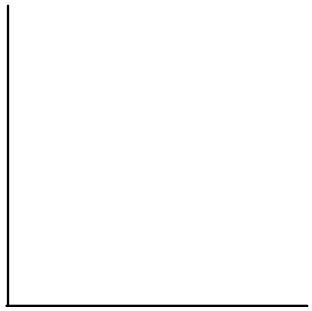
| X | #of Days |
|---|---|
| 0 | 15 |
| 1 | 25 |
| 2 | 10 |

| # of cars rented | 0 | 1 | 2 |
|---|---|---|---|
| Probability of P(X) | | | |

Mar 9-2:46 PM

I. Probability Distributions Example

Graph.



Feb 28-1:59 PM

I. Probability Distributions

**Requirements for a probability distribution**

1.) The sum of the probabilities of all events must equal _____

2.) The probability of each event must be between _____ and _____

Mar 9-2:48 PM

II. Expected Value

**EXPECTATION (A.K.A. EXPECTED VALUE)**

The expected value of a discrete random variable of a _____ is the _____of the variable.

NOTATION: _____

HOW TO FIND: Take each probability _____ by each value and _____.

Mar 27-1:34 PM

## II. Expected Value

Example

*When doing expected value questions. Think about how much you would actually win.

One thousand tickets are sold at $1 each for a color TV valued at $350. What is the expected value of the gain if a person purchases one ticket?

Mar 27-1:35 PM

## II. Expected Value

Expected value is also used to determine if a game is fair.

* If the expected value _____, then the game is fair.

*If the expected value is _____, then thegame is in favor of the house.

*If the expected value is _____, then the game is in favor of the player

Mar 27-1:38 PM

## II. Expected Value

Example

One thousand tickets are sold at $1 each for four prizes of $100, $50, $25, and $10. What is the expected value if a person purchases 1 ticket?

Feb 28-2:04 PM

## II. Expected Value

Example

The fee for entering a dog in a dog show is $75. The owner of the winning dog receives $2,000. Forty dogs are entered in the show. What is the expected value for each contestant?

Mar 27-1:37 PM

## II. Expected Value

Example

Your mother is sending a "care package" to you in college. She insures delivery of the package by paying $1.60 extra. If the package is lost in the mail, your mother will collect $60. The probability that the package is lost is .001. What is the expected value of the insurance?

Mar 27-1:38 PM

## Assignment:

Unit Plan Day 1 HW Worksheet

Unit 4 Quiz

Monday 2/24

Unit 4 Test

Friday 3/13

Mar 9-2:50 PM

Feb 9-11:27 PM