1) The following table shows the size of families in a small community:

Size	1	2	3	4	5
Probability	0.15	0.2	0.4	0.25	0.1

$0.15 + 0.4 + 1.2 + 1 + 0.5 =$

What is the expected size of a family in this community?

3.25

2) A fair has a mystery bag booth. There are 4 bags worth $40, 6 worth $20 and 10 are worth $10. What is the expected value of a random bag? If it costs $16, is it worth paying?

$$40 \qquad 20 \qquad 10$$

$$\times \frac{4}{20} \qquad \times \frac{6}{20} \qquad \times \frac{10}{20}$$

$$8 + 6 + 5 = \boxed{\$19} - 16 =$$

$$\frac{\$3}{Yes}$$

Warm-up

3) Jan wants to play a game; 1/20 you get $50, 1/4 you get $20 and the rest of the time she gets $15. Based on expected value, is it a good idea to play?

$$50 \times \frac{1}{20} = 2.5$$

$$20 \times \frac{1}{4} = 5$$

$$-15 \times 0.7 = -10.5$$

$$2.5 + 5 + -10.5 =$$

$$\boxed{-\$3} \quad No$$

$$\frac{1}{20} + \frac{1}{4} = 0.3$$

$$1 - 0.3 = 0.7$$

Warm-up

4) Bennett HS teachers are 40% male, 30% have their masters and 15% are males with their masters.

a. What is the probability that Haiden's teacher, Mr. Howie, has his masters?

Teacher is Male   Cond. $\dfrac{Both}{Known}$ $\dfrac{15}{40}$ $\boxed{\dfrac{3}{8}}$

b. What is the probability that Haiden's teacher is male or has their masters?

$$40 + 30 - 15 = \boxed{55\%}$$

Probability

Quiz
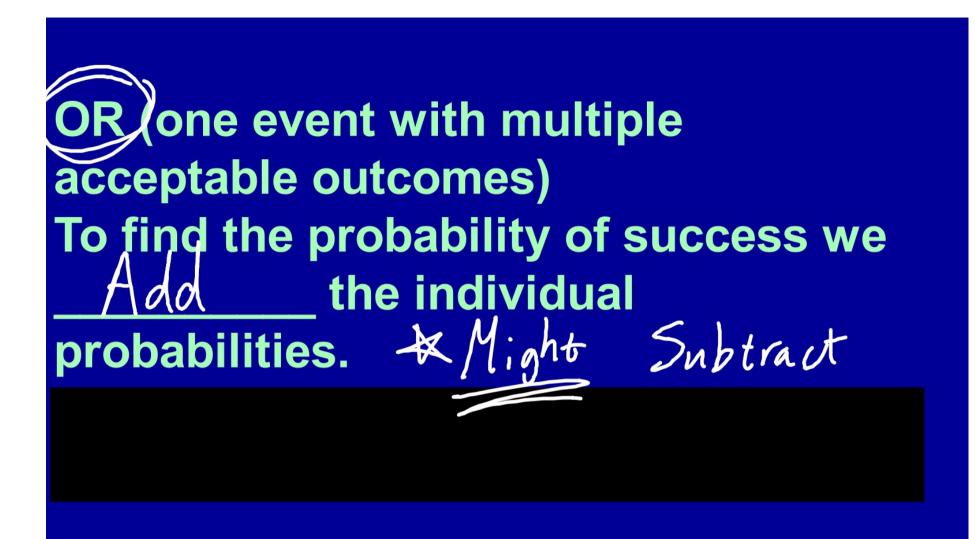
Unit 1 Topics

Consecutive Events

Compound Events

Conditional

Expected Value

Recap:
Independent events _do NOT_ **affect each other.**

Dependent events _do_ **affect each other.**

Permutation, the order _does_ **matter**

█████████████████████████████

Combination, the order _doesn't_ **matter**

█████████████████████████████

Consecutive Events:

AND / THEN (one event followed by another)

To find the probability of all events we Multiply **the individual probabilities.**

OR (one event with multiple acceptable outcomes)

To find the probability of success we ___Add___ the individual probabilities. *Might* Subtract

Given / known information / probability from a sub group instead of the whole

CONDITIONAL

$$\frac{\text{BOTH}}{\text{KNOWN}}$$

Last Emphasis on Key Words...

Expected ->

Exactly ->

Quiz

Take your time...

When you finish, take some time to move information from WSs to the WB.