Welcome Back! :)

...A look at our 2 weeks:

Tues. 5/29 - Probability Topics

Wed. 5/30 - **Unit 8 Test**

Thurs. 5/31 - Final Review

Paulson absent Friday 6/1

Fri. 6/1 - Final Review

Mon. 6/4 - Final Review

Tues. 6/5 - **FINAL EXAMS** 1, 2, 3, 4

Wed. 6/6 - **FINAL EXAMS** 1, 5, 6, 7

Warm-up: Egg Roulette

What is the probability that a raw egg is picked? Ahhh!

4 eggs are raw

8 eggs are boiled

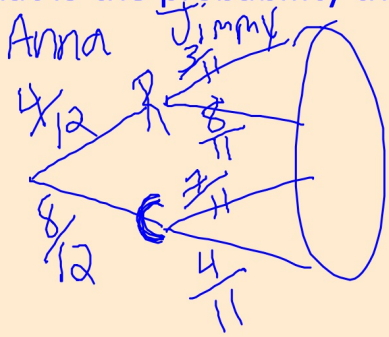
Model the possible outcomes for Anna and Jimmy's 1st two picks with a tree diagram.

Warm-up: Egg Roulette

4 eggs are raw
8 eggs are boiled

Model the possible outcomes for Anna and Jimmy's 1st two picks with a tree diagram.

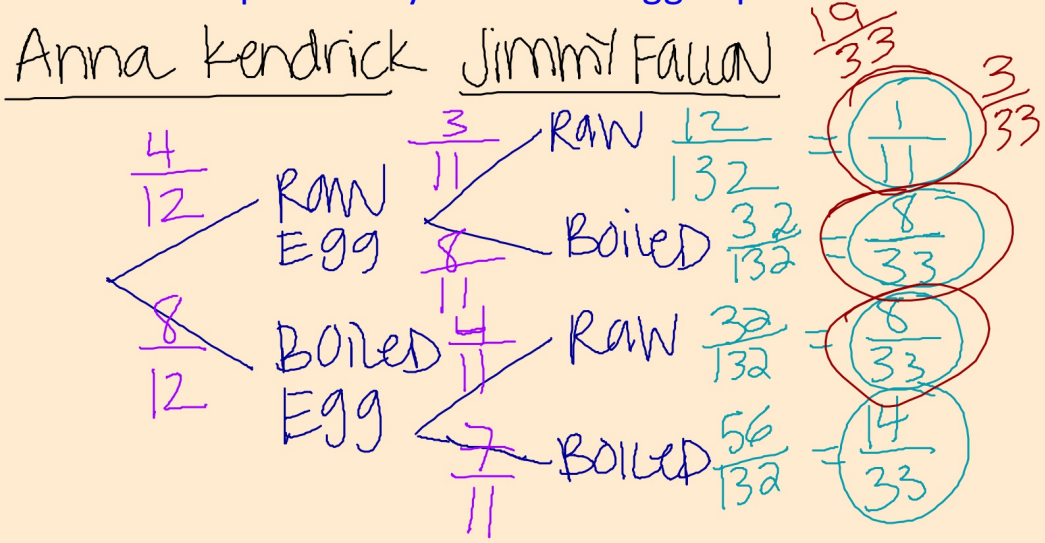
What is the probability that a raw egg is picked? Ahhh!



Warm-up: Egg Roulette

Model the possible outcomes for Anna and Jimmy's 1st two picks with a tree diagram.

What is the probability that a raw egg is picked? Ahhh!



Warm-up:

https://mrrowe.com/2018/05/20/egg-russian-roulette/

Egg Russian Roulette – A Cracking Probability Lesson | How ...

mrrowe.com

On Friday morning I was sitting at home having coffee before I left for school, still dissatisfied with my most recent lesson with my usually receptive Year 8 class.

Class Plan

1) Warm-up

2) Go over Quiz 8.1 (Review handout ??)

3) Unit 8 Probability Review

Unit 8: Probability

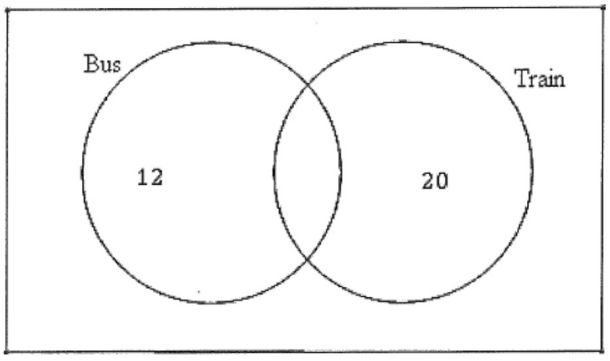
Do:

1. Finish Review Handout
2. Challenges: Gold Packet

Work Together :)

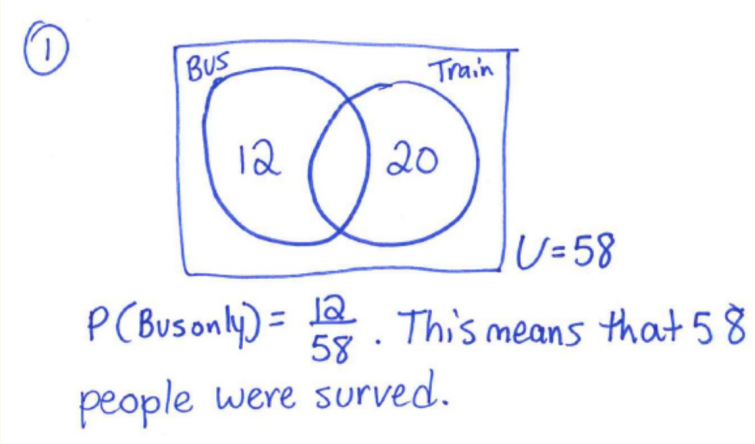
"Venn Diagram Review and Challenge Questions"

1. A group of people were randomly selected and asked which modes of transportation they used to get to work. Only two such modes were mentioned in their responses.



If one of these individuals is chosen at random, the probability that they catch a bus only is $\frac{12}{58}$. How many people responded that they catch a bus and a train?

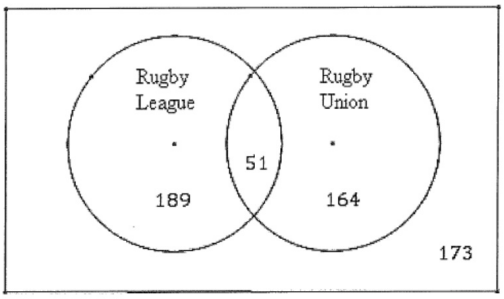
"Venn Diagram Review and Challenge Questions"



Assuming all survey responders took the bus OR train, 58 - 20 - 12 = 26 people took both types of transportation.

"Venn Diagram Review and Challenge Questions"

2. The Venn Diagram below shows the number of students in a school who play in the Rugby League, Rugby Union, both, or neither.



(a) How many students play in both Rugby League and Rugby Union?

(b) How many students play in Rugby League or Rugby Union?

(c) How many students play neither Rugby League nor Rugby Union?

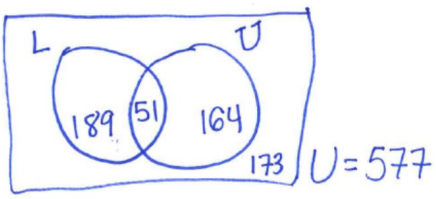
(d) How many students are there altogether?

(e) What is the probability that a student chosen randomly plays both Rugby League and Rugby Union?

(f) What is the probability that a student chosen randomly plays Rugby League or Rugby Union or both?

"Venn Diagram Review and Challenge Questions"

②



a) $L \cap U = 51$ students play both

b) $L \cup U = 404$ students play on either a league or a union.

c) $(L \cup U)' = 173$ students play neither.

d) 577 = Universe, 577 students in total.

"Venn Diagram Review and Challenge Questions"

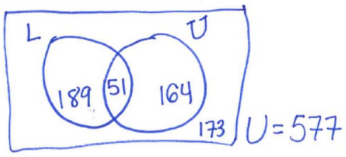
(e) What is the probability that a student chosen randomly plays both Rugby League and Rugby Union?

(f) What is the probability that a student chosen randomly plays Rugby League or Rugby Union or both?

e) $P(L \cap U) = \frac{51}{577} \approx 8.8\%$

f) $P(L \cup U) = \frac{404}{577} \approx 70\%$

②



a) $L \cap U = 51$ students play both

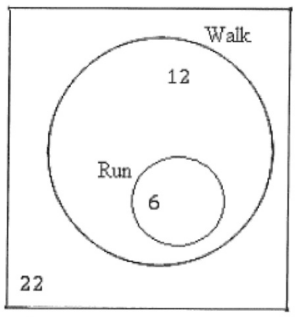
b) $L \cup U = 404$ students play on either a league or a union.

c) $(L \cup U)' = 173$ students play neither.

d) $577 =$ Universe, 577 students in total.

"Venn Diagram Review and Challenge Questions"

3. A group of people were asked what form of exercise they do. Their responses are displayed in the Venn Diagram below.



(a) True or False?:

i. 12 people walk only.

ii. 22 people run only.

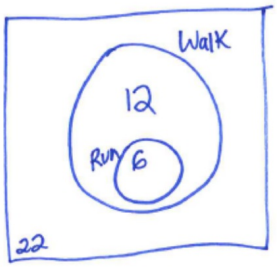
iii. 6 people run only.

iv. 6 people walk only.

(b) If one of the people is chosen at random, what is the probability that they walk for exercise?

"Venn Diagram Review and Challenge Questions"

(3)



e) $\frac{18}{46} = \frac{9}{20}$

a) 12 people walk only - True!

b) 22 people do not walk nor run. (False to run only!)

c) 6 people run AND walk.
(False to run only)

d) 6 people run AND walk
(False to walk only)

"Venn Diagram Review and Challenge Questions"

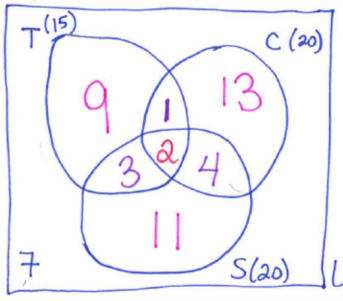
4. In a group of 50 students at a school, 15 play tennis, 20 play cricket, 20 swim, and 7 students do nothing. 3 students play tennis and cricket, 6 students play cricket and swim, 5 students play tennis and swim. Create a Venn Diagram for these sets and determine how many students play all three sports.

"Venn Diagram Review and Challenge Questions"

④ $U = 50$ students

$T = 15$, $C = 20$, $S = 20$, $t =$ Neither sport.

$T \cap C = 3$, $C \cap S = 6$, $T \cap S = 5$



$T \cup C \cup S = 43$

$U = 50$

$T \cap C \cap S = T \cup C \cup S + 3 \text{ intersections} - T - C - S$

$2 = 43 + 3 + 6 + 5 - 15 - 20 - 20$

$2 = 57 - 55$

* 2 students play tennis, swim, and play cricket!

"Venn Diagram Review and Challenge Questions"

5. A certain school has three performing arts extracurricular activities: Band, Choir, or Drama. Students must participate in at least one, and may participate in two or even all three. There are 120 students in the school. There are 70 students in Band, 73 in Choir, and 45 in Drama. Furthermore, 37 students are in both Band and Choir, 20 are in both Band and Drama, and 8 are in all three. Twenty-five students are only in Choir and not anything else.

   (a) Create a Venn Diagram to represent this information.

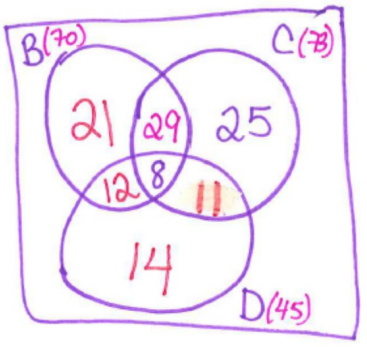
   (b) How any students participate only in Drama?

"Venn Diagram Review and Challenge Questions"

⑤

B = 70
C = 73
D = 45

B ∩ C = 37
B ∩ D = 20
B ∩ C ∩ D = 8



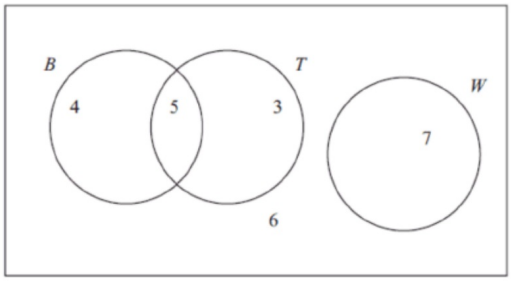
Only choir = 25

U = 120

⑧ 14 students only participate in drama.

"Venn Diagram Review and Challenge Questions"

6. The diagram below displays how a group of people travel to work.
   B = bicycle, T = train, and W = walk.



(a) Write down two sets that are mutually exclusive. Give a reason for your answer.

(b) Determine whether or not B and T are independent.

One person is chosen at random. Find the probability that the person selected...

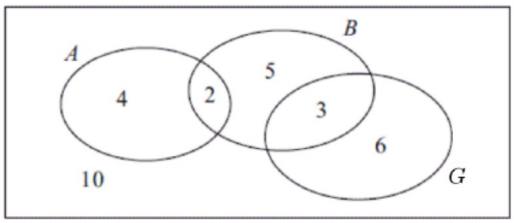
(c) walks to work.

(d) travels to work by bicycle and train.

(e) Given that the person travels to work by bicycle, find the probability that they will also take the train.

"Venn Diagram Review and Challenge Questions"

7. The Venn Diagram below shows the number of students in a class who read any three of the following comic books: *The Avengers* (A), *Batman* (B), and *Guardians of the Galaxy* (G).



One student from the class is selected at random.

(a) Show that the probability that the selected student reads more than one of the comic books is $\frac{1}{6}$.

(b) Find the probability that the selected student reads *The Avengers* or *Batman* (or both).

(c) Determine the probability that the student reads both *The Avengers* and *Guardians of the Galaxy*.

(d) Given that the student reads at least one of the comic books, find the probability that the student reads *Guardians of the Galaxy*.

(e) Do you think that reading *Batman* and reading *Guardians of the Galaxy* are independent? Why or why not.

"Venn Diagram Review and Challenge Questions"

Edit: "93 likes juices A **and C**"

8. Below are listed the results of a juice tasting survey of 100 people.

96 like juice A	93 like juice B	96 like juice C
92 like juices A and B	91 like juices B and C	93 like juices A and C
~~X~~ 90 like all three juices		

(a) Draw a Venn Diagram to represent these data.

Find the probability that a randomly selected person from the survey likes:

(b) None of the three juices.

(c) Juice A but not juice B.

(d) Any juice in the survey except juice C.

(e) Exactly two of the three kinds of juice.

(f) Given that a person from the survey likes juice A find the probability that the person likes juice C.

"Venn Diagram Review and Challenge Questions"

9. In a particular company the 200 employees are classified as full-time workers (F), part-time workers (H), or contractors (C).
The table below shows the number of employees in each category and whether they walk to work (W) or use some form of transport such as using a car, bike, or bus (T).

	Walk (W)	Transport (T)
Full-Time Worker (F)	2	8
Part-Time Worker (H)	35	75
Contractor (C)	30	50

(a) Find $P(H)$. (b) Find $P\left([F \cap W]'\right)$. (c) Find $P(W|C)$. (*Recall*: $W|C$ = "W given C".)

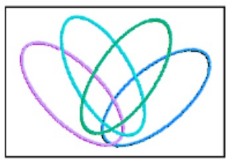
Let B be the event that an employee uses the bus.
It is known that 10% of full-time workers use the bus, 30% of part-time workers use the bus, and 20% of contractors use the bus to get to work.

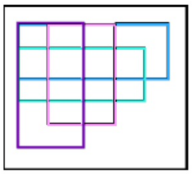
(d) Draw a Venn Diagram to represent the F, H, C, and B. (*Hint*: Would a person in F also be in H or C?)

(e) Find the probability that a randomly selected employee uses the bus to travel to work.

"Venn Diagram Review and Challenge Questions"

10. Below is shown a Venn Diagram of 4 sets created using ellipses (called a Venn Flower) and another using rectangles.





(a) Can a Venn Diagram be created for 4 sets using circles? Why or why not?

(b) Are there any special situations or properties of the particular sets that would change your answer to part (a)?