Questions on 9.1?

Standard
deck of cards
―――――――
52 total
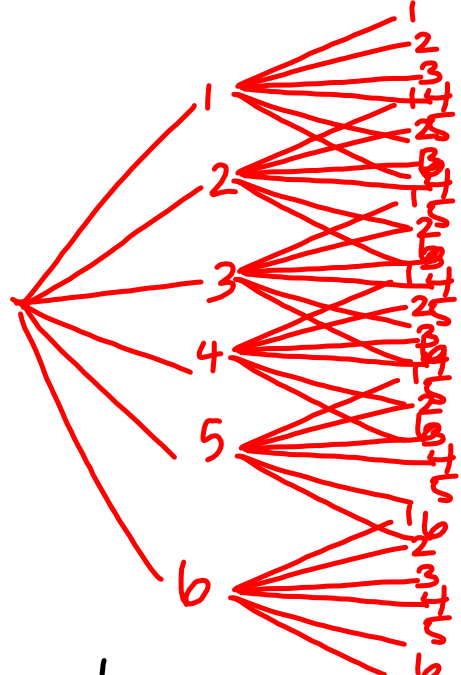4 suits
  ― ♡ hearts
  ― ◇ diamonds
  ― ♣ clubs
  ― ♠ Spades
13 of each suit
  2-10, J, Q, K, A

㉑ $P(2 \; 3's) = \frac{1}{6} \cdot \frac{1}{6} = \frac{1}{36}$

㉒ $P(red) = \frac{2}{10} = \frac{1}{5} = 0.2 = 20\%$

9.2 Chocolate versus Vanilla
A Solidify Understanding Task

Danielle loves chocolate ice cream much more than vanilla and was explaining to her best friend Raquel that so does most of the world. Raquel disagreed and thought vanilla is much better. To settle the argument, they created an online survey asking people to choose their favorite ice cream flavor between chocolate and vanilla. After completing the survey, the following results came back:

- There were 8,756 females and 6,010 males who responded.
- Out of all the males, 59.7% chose vanilla over chocolate. $\dfrac{59.7}{100} = 0.597$
- 4,732 females chose chocolate.

1. Upon first observations, which flavor do you think "won"? _____. Write a sentence describing what you see at 'first glance' that makes you think this.

2. Raquel started to organize the data in the following two-way table. See if you can help complete this (using counts and not percentages):
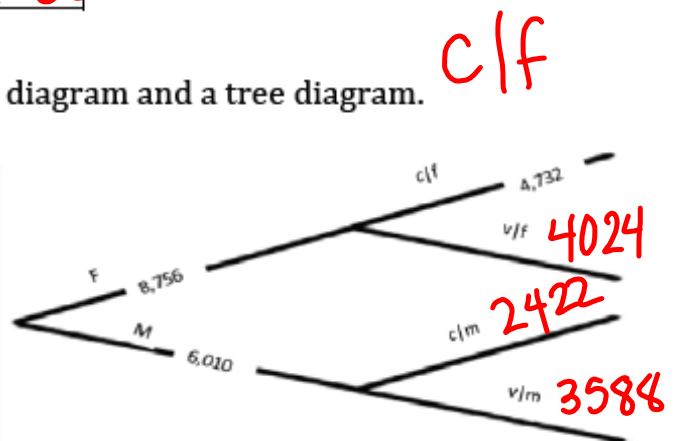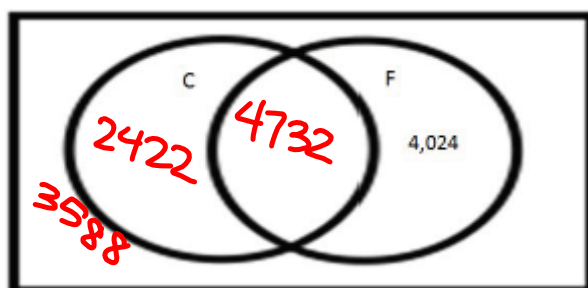
$$-\begin{array}{c}6010\\3588\end{array} \qquad -\begin{array}{c}8756\\4732\end{array} \downarrow$$

$0.597\,(6010) = 3587.97$

	Chocolate	Vanilla	Total
Female	4732	4024	8,756
Male	2422	3588	6,010
Total	7154	7612	14766

3. Organize the same data in a Venn diagram and a tree diagram.

c|f

Venn diagram: C circle contains 2422, overlap 4732, 3588; F circle contains 4,024

Tree diagram:
F 8,756 → c|f 4,732; v|f 4024
M 6,010 → c|m 2422; v|m 3584

4. Using your organized data representations, write probabilities that help support your claim regarding the preferred flavor of ice cream. For each probability, write a complete statement as well as the corresponding probability notation.

$$P(C) = \frac{7154}{14766} = 0.484$$

$$P(V) = \frac{7612}{14766} = 0.516$$

$$P(C|F) = \frac{4732}{8756} = 0.540$$

$$P(V|F) = \frac{4024}{8756} = 0.460$$

$$P(C|M) = \frac{2422}{6010} = 0.403$$

$$P(V|M) = \frac{3588}{6010} = 0.597$$

5. Looking over the three representations (tree diagram, two-way table, and Venn diagram), what probabilities seem to be easier to see in each? What probabilities are hidden or hard to see?

Highlighted (easier to see)	Hidden
Tree diagram conditional probabulities	Tree diagram
Two-way table totals	Two-way table
Venn diagram chocolate & females	Venn diagram males & vanilla

6. Getting back to ice cream. Do you think this is enough information to proclaim the statement that one ice cream is favored over another? Explain.

May 13-8:26 AM

Homework

Finish 9.2 "Ready, Set, Go"

Mar 28-9:36 AM