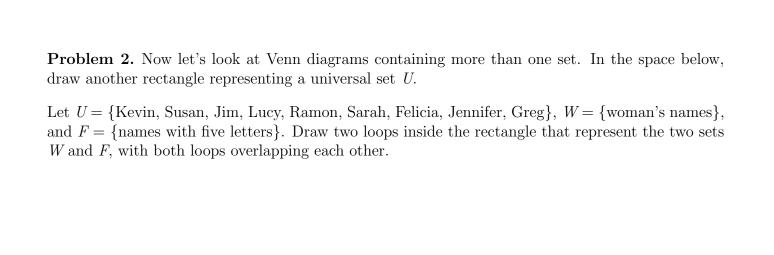


Now, using the sets U and P from above, write out the set \bar{P} (the complement of P) in set notation.

Where are the elements of \bar{P} found in your Venn diagram?

colors.

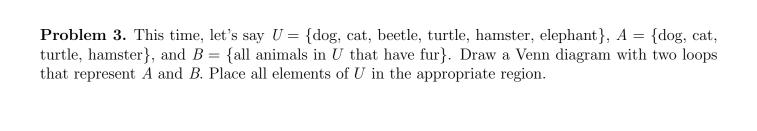


Keep in mind that the loop for W will contain the elements found in W, and similarly for F. Fill in the Venn diagram by placing each element of U in the appropriate region. Which elements are found in the region where the two loops overlap? Explain why these elements are in the overlapping region.

Using set notation, write out the list of elements corresponding to each set:

- (a) $W \cap F =$
- (b) $W \cup F =$

Write out a sentence that explains the region in the Venn diagram where you can find $W \cap F$. Repeat this for $W \cup F$.



Using set notation, write out the list of elements corresponding to each set:

- (a) $A \cap B =$
- (b) $A \cup B =$

Looking at the elements in each set, can you draw a conclusion about how A and B are related?

Problem 4. Now let's put everything together to get a better handle on Venn diagrams. Let $U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$, $E = \{\text{all even numbers between 1 and 11}\}$, $P = \{\text{prime numbers less than 10}\}$, and $T = \{\text{all numbers in } U \text{ that are divisible by 3}\}$.

(a) In the space below, draw a three-loop Venn diagram that illustrates the situation described above.

(b) Using your Venn diagram, list (within braces) the elements of the following sets:

- (a) $E \cup P =$
- (b) $E \cap P =$
- (c) $P \cup T =$
- (d) $\bar{P} =$
- (e) $\bar{E} =$
- (f) $\bar{E} \cap P =$
- (g) $P \cap \bar{T} =$
- (h) $\bar{T} \cup \bar{P} =$