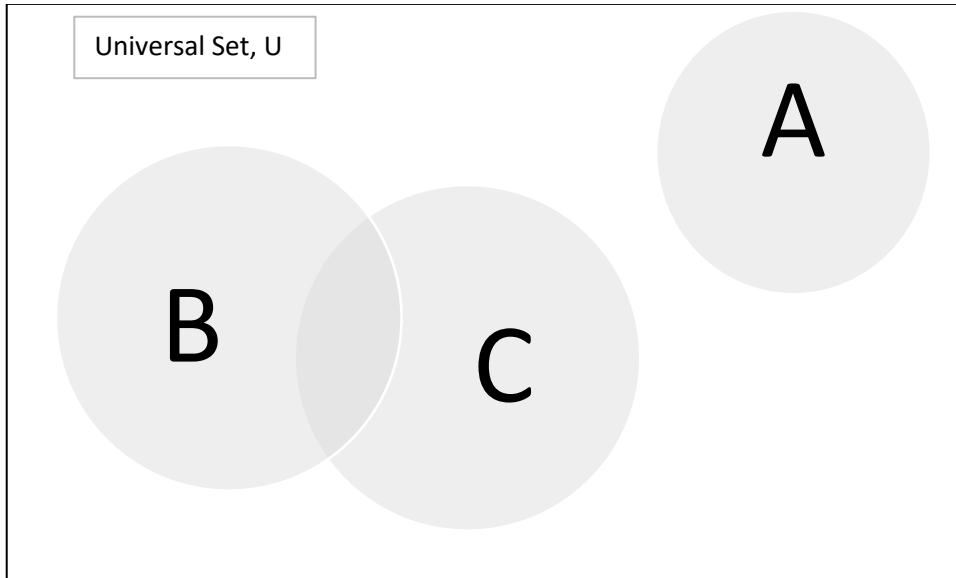


Questions

Use the following to solve questions 1 to 7:



$U =$ natural numbers 1 to 10, inclusive

$$A = \{x \mid x = 6n + 1, n \in \mathbb{N}\} \rightarrow A = \{7\}$$

$$B = \{\text{multiples of } 2\} \rightarrow B = \{?\}$$

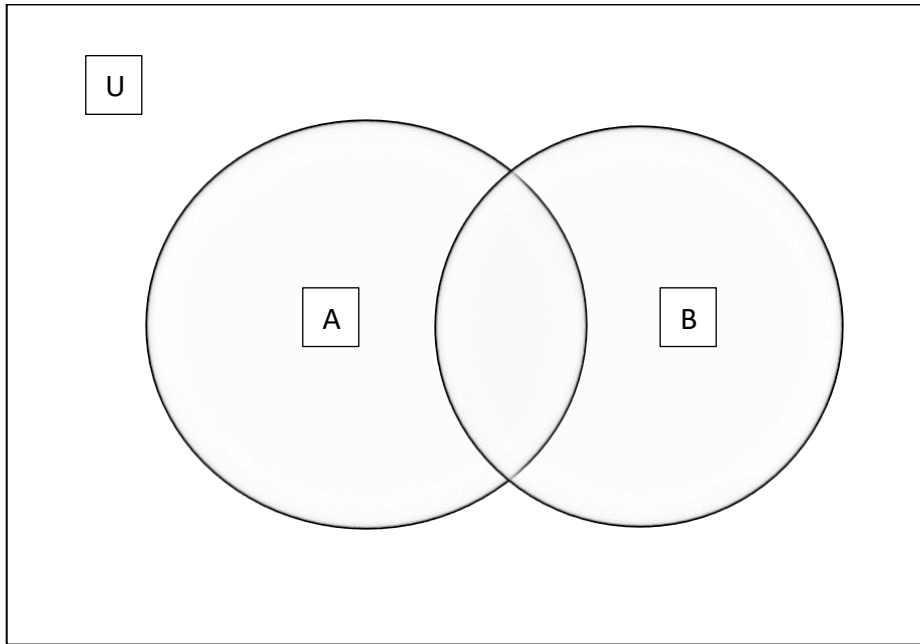
$$C = \{\text{multiples of } 3\} \rightarrow C = \{3, 6, 9\}$$

1. Define the elements of Set B.
2. **TRUE** or **FALSE**: Set B and Set C are disjoint.
3. **TRUE** or **FALSE**: Set A and Set C are disjoint
4. **TRUE** or **FALSE**: $\emptyset \subset A$
5. $B \cap C = ?$



6. $B \cup C = ?$

7. $|C| = ?$

8. Shade the region(s) of the Venn diagram that represent $(A \cup B)'$.

9. The following are four sets of whole numbers:

$$A = \{\text{even numbers less than } 13\}$$

$$B = \{1, 5, 9, 13\}$$

$$C = \{4, 8, 12\}$$

$$D = \{\text{prime numbers less than or equal to } 13\}$$

a) What two sets produce the union $\{1, 4, 5, 8, 9, 12, 13\}$ b) What set results from $A - C$?c) What two sets produce the intersection $\{1, 5, 13\}$?

d) C is a subset of A. TRUE or FALSE?



10. For the following three sets:

$$X = \{ 1, 5, 9, 13 \}$$

$$Y = \{ 1, 3, 5, 7, 9, 11, 13, 15 \}$$

$$Z = \{ 3, 6, 9, 12 \}$$

Are the following statements **TRUE** or **FALSE**?

- a) $|X \cup Z| = 7$
- b) $X \cap Z = 9$
- c) $Y - X = \{3, 7, 11, 15\}$
- d) $Y \subset X$

BONUS QUESTION:

A group of cats were asked if they like to eat salmon and chicken. Their responses are recorded in the table.

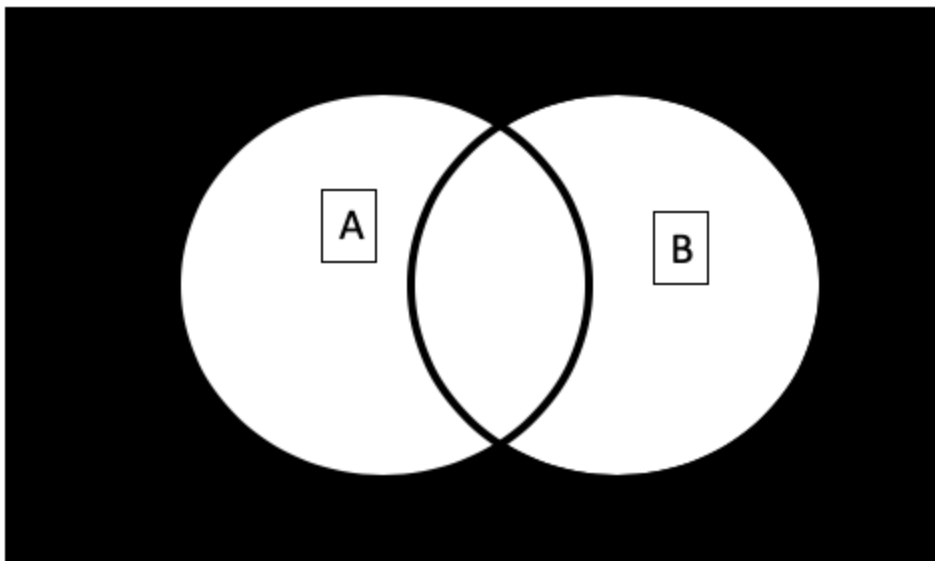
CHICKEN ONLY	12
SALMON ONLY	14
BOTH SALMON AND CHICKEN	22
NEITHER	3

How many cats like chicken?



ANSWERS:

1. $B = \{2, 4, 6, 8, 10\}$
2. FALSE
3. TRUE
4. TRUE
5. $B \cap C = \{6\}$
6. $B \cup C = \{2, 3, 4, 6, 8, 9, 10\}$
7. $|C| = 3$
- 8.



9. a) B and C b) $A - C = \{2, 6, 10\}$ c) B and D d) TRUE
10. a) TRUE b) TRUE c) TRUE d) FALSE

BONUS: 34

