Math 101 - Exam 1
Show all of your work

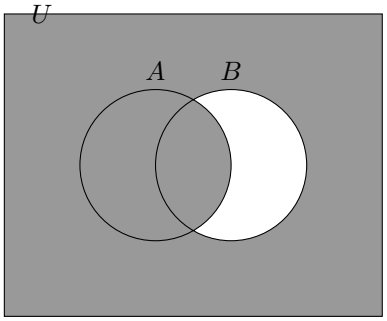
Name: _____

1. How many odd numbers are in the set

$$A = \{x \in \mathbb{N} \mid 32 < x \leq 143\}$$

2. Find the sum $33 + 35 + 37 + \cdots + 141 + 143$.

3. Write a symbolic description of the shaded area. Use the symbols $A, B, \cup, \cap, -$, and $'$ as necessary.



4. If U has 16 elements, A has 6 elements, and $A \cup B$ has 9 elements. How many elements does the shaded area in problem 3 have? Explain your answer clearly.

5. Give a negation of the statement "If x is not odd, then $x > 0$". Do not use a slash symbol.

6. Let p represent a false statement and let q represent a true statement. Find the truth value of

$$\sim (\sim p \longleftrightarrow q)$$

7. Let p be the statement "It is not summer.", and q be the statement "Running bear loves little white dove." Write the following statement in logical terms, using $p, q, \wedge, \vee, \sim, \longrightarrow$, and $\longleftrightarrow$ as necessary:

"It is summer if the running bear loves little white dove"

8. Construct the truth table for the statement $(p \longleftrightarrow q) \wedge \sim p$.