Assignment #4

Solutions.

1a: If \( n \geq 10 \) AND EVEN

Then \( n = (n - 4) + 4 \).

\( n - 4 \) is an even number greater than or equal to 6, so it's composite.

4 is composite.

1b: If \( n \geq 13 \) AND ODD

Then \( n = (n - 9) + 9 \).

\( n - 9 \) is an even number greater than or equal to 4, so it's composite.

9 is composite.
2: IF \( n \in \mathbb{N}, \ n \neq 1 \) AND \( 2 \leq k \leq n \)

THEN \( n! + k = k \left( \frac{n!}{k} + 1 \right) \).

SINCE \( k \leq n \) \( \frac{n!}{k} \) is A NATURAL NUMBER \( \implies n! + k \) IS COMPOSITE.