Latex help: "a divides b" and "a does not divides b" and "a is congruent to b mod n" and "a is not congruent to b mod n":

$$a \mid b \quad , \quad a \nmid b \quad , \quad a \equiv b \pmod{n} \quad , \quad a \not\equiv b \pmod{n}.$$

Do not forget needed parentheses: $a \mid (b - 17)$ is correct while $a \mid b - 17$ is not right.

▶.   **Conjecture 1**. For all integers a, b, and c with $a \neq 0$, if a divides bc then a divides b or a divides c.

1.   Symbolically write Conjecture 1. As universes, use $\mathbb{Z}$ and/or $\mathbb{Z}^{\neq 0}$ and/or some cross product of these.

     As always, when we symbolically write, we can use the math symbol for divides (e.g., $a \mid (b - 1)$ is fine to use).

2.   Say whether Conjecture 1 is true or false.

3.   If Conjecture 1 is true, then provide a proof of Conjecture 1. If Conjecture 1 is false, then provide a counterexample that shows (and clearly explains) why Conjecture 1 if false.

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     DELETE this whole sentence and THEN put your answer to ALL parts down here.