e2

3. True or False. If true, **prove** it. If false, then give a **counterexample**. For all integers a, b, and c, if $a|bc$, then $a|b$ or $a|c$.

False

Take $a=6$ $b=2$ and $c=3$

$a|bc$ because $6|2\cdot 3$ but

$a \nmid b$ because $6 \nmid 2$ and

$a \nmid c$ because $6 \nmid 3$.

4. Write 58 in base 16. $58 = 48+10 = 3\cdot 16 + 10 = 3A_{16}$

5. What is the negation of "$x < 3$ or $7 \leq x$"?

$3 \leq x < 7$

6. Is the following argument valid?
For all students x, if x studies discrete mathematics, then x is good at logic.
Ken does not study discrete mathematics.
$\therefore$ Ken is not good at logic.

NO This "argument" illustrates the inverse error

$p \rightarrow q$

$\sim p$

$\therefore \sim q$