Direct Proof

Use a direct proof to prove:
If $a|b$ and $b|c$, then $a|c$.
(recall: $x|y \equiv \exists w \in \mathbb{Z}: xw = y$)

If finish, please sit and work on proving:

- $P \rightarrow Q \equiv \neg Q \rightarrow \neg P$.
- If n even, then n^2 is even.

Contrapositive

Use a contrapositive proof to show

If a^2 is not divisible by 4, then a is odd.

If finish, please sit and work on:

- Why is the above hard to prove directly?
- Prove: for every prime number p, either $p = 2$ or p is odd