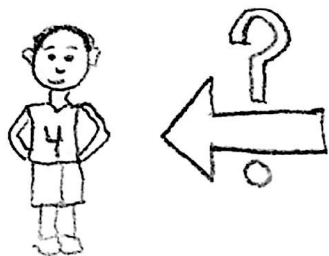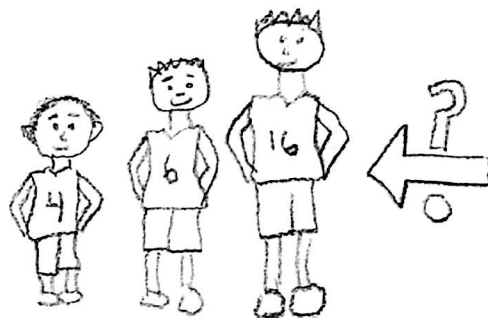# "Prove by induction that every finite non-empty subset of the real numbers contains a least element" -- to my brother in 3rd Grade

DAY 1:

You show up to basketball practice today, and you're the only player there! Coach tells the team to get in height order, shortest to tallest.
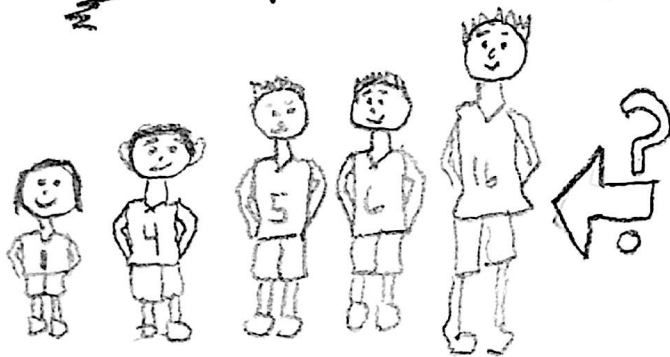
Can we figure out who the shortest player at practice is? Of course! It's you because you're the only one there!

DAY 2:

You have practice again today. This time, more of your teammates show up. Coach has you get in height order again.

Who is the shortest player at practice now? Can we figure it out? Of course. You're the shortest player at practice today.

DAY 3:

Even more kids show up to practice today. You get in height order again.

Who is the shortest now? It's changed. #1 is now the shortest player at practice.

What does this mean?

No matter who shows up to practice, no matter who is there to get in height order, someone will always be the shortest person at practice. Whoever is added to the team, they'll always either be taller, shorter, or the same height as the shortest player. Your team will always have a shortest player.

— By Josh Davis