

**Checking Conditions is a way to check:**

- Shape: large counts:  $np, n(1-p) \geq 10, n \geq 30$
- Center: randomization
- Spread: 10% validates the standard deviation formula & addresses the independence issue

**Assumptions** are things that the underlying theorems require to be true before we can proceed (e.g., it must be a right triangle if you want to use the Pythagorean theorem).

**Conditions** are things we can look for in the study design or the data to shed light on the assumptions. (Do you see a right angle?)

These things come in 3 flavors:

- (1) Stuff we just assume because it feels right. Are successive rolls of a die independent? Seems OK to me.
- (2) Stuff we can check on. Is the population Normal? Hmm... let me eyeball that histogram of the sample data.
- (3) Stuff we can use to override an assumption we know is false. Sampling without replacement from a finite population (like drawing cards from a deck) means the outcomes are not independent. BUT, we argue, if we sample randomly and only take a small chunk out of the population (say, less than 10%), then that's close enough (a kind of quasi-independence).