Power Dominos

We are testing a new headache medication to see if it is more effective than the current treatment (known to relieve pain within 15 minutes for 60% of headache suffers). We give the new medication to a bunch of volunteers and see what fraction of them report relief within 15 minutes.

The enclosed dominos need to be placed in order from START to FINISH. Each statement about the new headache medicine will be followed by a translation of that statement, until you reach the FINISH domino.

START	If the new medication is actually 90% effective we'll almost surely notice. If the new med is only 65% effective we may miss that.
8 **TRANSLATION:** **The greater the effect size, the higher the power**	If we are willing to accept less evidence, we are more likely to notice any effect
6 **TRANSLATION:** **The higher the alpha level, the greater the power.**	If we are easier to convince, we are more likely to mistakenly think the new medication works when it really doesn't.
7 **TRANSLATION:** **The higher the alpha level, the greater the risk of a Type I error.**	If we are easy to convince, we are less likely to miss an effective medication.
5 **TRANSLATION:** **The higher the alpha level, the lower the risk of a Type II error.**	If we demand stronger evidence, we are more likely to miss the fact that the medication is more effective.
3 **TRANSLATION:** **The lower the alpha level, the greater the risk of a Type II error.**	If we require a higher standard of proof, we are less likely to be fooled into thinking an ineffective medication works.

0 **TRANSLATION: The lower the alpha level, the lower the risk of a Type I error.**	If we are tougher to convince, the less likely we are to notice that the medication really is effective.
9 **TRANSLATION: The lower the alpha level, the less power we have.**	If we increase the number of subjects in our experiment, we are more likely to discover an effective medication.
TRANSLATION: Increasing your sample size increases your power.	FINISH