

## Probability

A value used to express the chance or likelihood of something happening. Value can be a fraction, decimal or percent.

Value comes from  $\frac{\text{(number of ways of getting what youre looking for)}}{\text{(number of possible outcomes)}}$

For example: If there are four red pens in box of 20,  
the probability of picking a red pen is ...

$$P(\text{red}) = 4 \div 20 = 1/5 = 0.2 = 20\%$$

\*\*\*Hopefully, you haven't forgotten how to convert fractions to decimals and percents\*\*\*

**All** probability values will be between 0 and 1 (0 and 100%). 0 means impossible, and 1 means certain or guaranteed.

**Complementary Events:** Events which describe all possible outcomes. Picking a red pen and picking a non-red pen are complimentary, because those are the only two different outcomes.

The sum of complimentary probabilities will always be 1, or 100%.

$$P(\text{red}) + P(\text{not red}) = 0.2 + 0.8 = 1$$

**Theoretical Probability:** What *should* happen. Based on the types of pens in that box, you *should* pick a red pen 4 out of every 20 tries.

**Experimental Probability:** What actually *did* happen. Experiment must be conducted and results tracked. Normally different from theoretical. *More tests (or bigger sample) in the experiment...closer to theoretical.*

**Sample:** The selections actually made

**Population:** The group from which the sample was taken.

For example: If Mr. O'Hearn asks three students from this class what their favourite music is. Those three students are the sample; the whole class is the population.

Now, time to practice:

pg. 193-194, CKI #1-4

pg. 194, CYU #1-4 and 7-9

...of course, this becomes homework if not done by the end of class.