

Mathematics 11C

2.3 – Comparing Experimental and Theoretical Probability

Mr. D. Hagen

One die, $P(1) = \frac{1}{6}$

$$P(2) = \frac{1}{6}$$

$$P(3) = \frac{1}{6}$$

$$P(4) = \frac{1}{6}$$

$$P(5) = \frac{1}{6}$$

$$P(6) = \frac{1}{6}$$

If we roll 24 times, how many 5's do you expect?

$$\rightarrow 24 \times P(5)$$

$$24 \times \frac{1}{6} = \frac{24}{6} = 4$$

Roll	Frequency
1	6
2	6
3	1
4	2
5	3
6	6

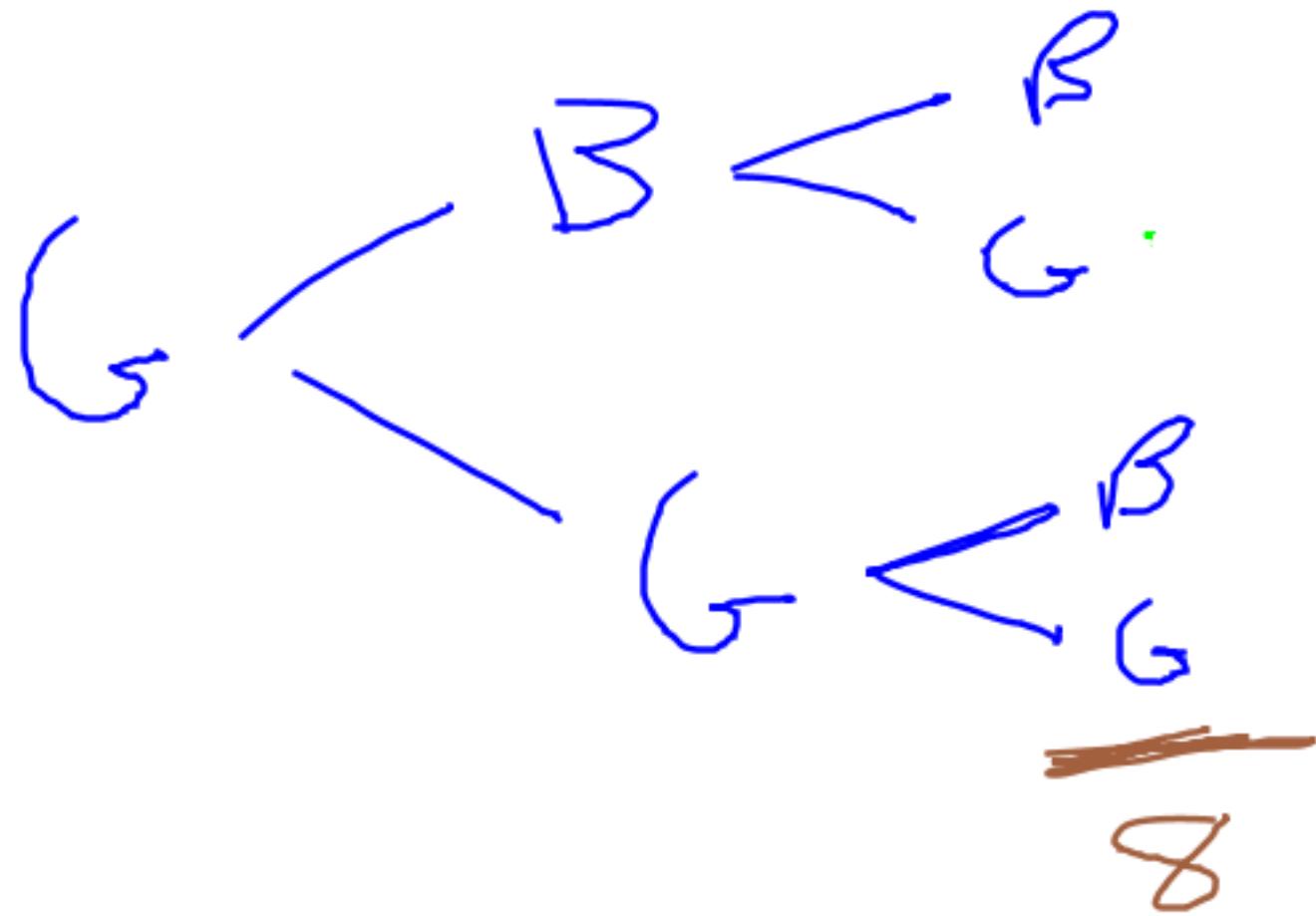
$$P(5) = \frac{3}{24} = \frac{1}{8} = 13\%$$

Theory of large numbers:

- The more trials, the closer the experimental will match the theoretical.

A couple wants 3 children.

a) List the combinations:



Tree Diagram

$$P(2G, 1B) = \frac{3}{8}$$

$$P(\text{At least } 2G)$$

$$= P(2G, 1B) + P(3G)$$

$$= \frac{3}{8} + \frac{1}{8} = \frac{4}{8}$$