Mathematics 11C

2.1 – Probability Experiments

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Probability is the measure of the likelihood that a specific event will occur.

- rolling a 3
- flipping a head
- hitting a homerun

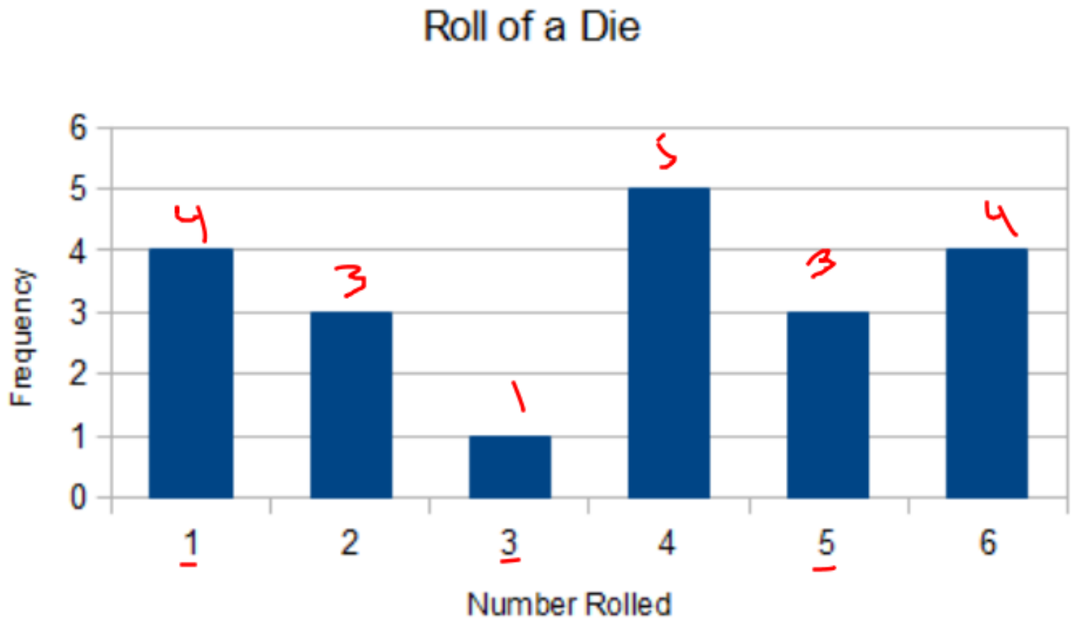
Experimental Probability is the number of successful trials divided by the number of total trials.

$$P = \frac{\#\text{ of successful trials}}{\#\text{ of total trials}}$$

↳ one round, turn

Probability is always a value **between 0 and 1.**

$\frac{1}{2} = 0.5 = 50\%$



$P(\text{Even}) = 60\%$

# of Trials = 20

$$P(\text{rolling a } 4) = \frac{5}{20} = \frac{1}{4} = 0.25 = 25\%$$

$$P(\text{odd}) = \frac{8}{20} = \frac{2}{5} = 40\%$$

A coin was tossed 30 times. The experimental probability of turning up heads was 2/5. How many times did the coin turn up heads?

.40

$$P = \frac{\#\text{ of s. trials}}{\text{total trials}}$$

$$0.4 = \frac{x}{30}$$

$$12 = x$$

At a light bulb factory, a batch of bulbs is rejected if more than 5% of the bulbs in a sample taken from the batch are defective.

a) If 240 bulbs are tested and eight are defective, will the batch be rejected?

$$P = \frac{\#\ \text{failures}}{\#\ \text{total}} = \frac{8}{240} = 0.03 = 3\%$$

good to go

b) In a batch of 1000 bulbs, exactly 100 are defective. A sample of 200 bulbs from that batch of 1000 is tested. Do you expect the batch will be rejected?

Yes

$$P = \frac{100}{1000} = 10\%$$

$$\frac{20}{200} = .1$$