



Probability

A number from 0 to 1

- Today: measure how likely something is, on a fixed scale.

A marble is either red, or it isn't.

- Two outcomes.

Turn & talk: so is $P(\text{red}) = \frac{1}{2}$?

The scale

- 0 = impossible. 1 = certain. $\frac{1}{2}$ = even chance.
- $P(\text{event}) = \text{favourable} \div \text{TOTAL}$.

3 red, 5 blue, 2 green

- $P(\text{red}) = \frac{3}{10}$, $P(\text{not red}) = \frac{7}{10}$.
- Two outcomes — and nowhere near even.

Counting outcomes tells you HOW MANY. Not how likely.

Everything must add to 1

- $\frac{3}{10} + \frac{5}{10} + \frac{2}{10} = 1$.
- Because something must happen.

$P(\text{not } A) = 1 - P(A)$. Always.

Your turn

- Find $P(\text{green})$ and $P(\text{not green})$. Do they add to 1?
- Thumbs up when you have both.

Instant error check

- Any answer above 1 or below 0 is impossible.
- $P(\text{red}) = 3$ is a COUNT, not a probability.

Nothing is more likely than certain.

Now you

- → In-class practice sheet