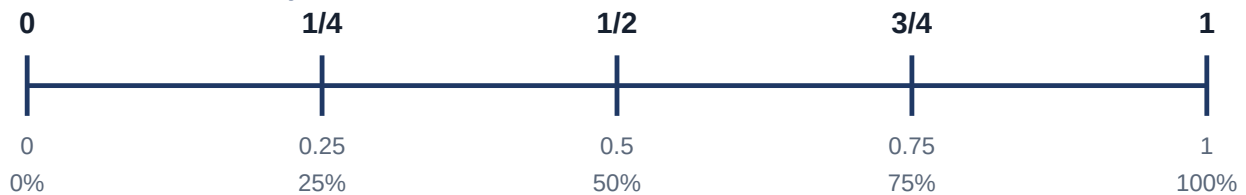


The same number, three ways



THE FRIENDLY ONES

FRACTION	DECIMAL	PERCENTAGE
0	0	0%
1/10	0.1	10%
1/5	0.2	20%
1/4	0.25	25%
3/10	0.3	30%
2/5	0.4	40%
1/2	0.5	50%
3/5	0.6	60%
7/10	0.7	70%
3/4	0.75	75%
4/5	0.8	80%
9/10	0.9	90%
1	1	100%

THE TRICKY ONES

FRACTION	DECIMAL	PERCENTAGE
1/8	0.125	12.5%
1/6	≈ 0.17	≈ 16.7%
1/3	≈ 0.33	≈ 33.3%
3/8	0.375	37.5%
5/8	0.625	62.5%
2/3	≈ 0.67	≈ 66.7%
5/6	≈ 0.83	≈ 83.3%
7/8	0.875	87.5%

WHY SOME ROWS ARE SHADED

Thirds and sixths never finish.
 $1/3 = 0.3333...$ with the 3s going on forever.
 The shaded rows are rounded, so they use the sign $\approx$, which means "about".
 A die is sixths, so this matters: $1/6$ is about 17%, not exactly 17%.

If it is not on the list

FRACTION → DECIMAL

Divide the top by the bottom.

$$3/8 \rightarrow 3 \div 8 = 0.375$$

DECIMAL → PERCENTAGE

Multiply by 100.

$$0.375 \rightarrow 0.375 \times 100 = 37.5\%$$

PERCENTAGE → FRACTION

Put it over 100, then simplify.

$$40\% \rightarrow 40/100 = 2/5$$

HOW MANY TIMES SHOULD I EXPECT IT? 2 red out of 5 sections, spun 200 times

Method 1 — divide, then multiply

$$200 \div 5 = 40, \text{ then } 40 \times 2 = 80$$

Method 2 — decimal first, then multiply

$$2 \div 5 = 0.4, \text{ then } 0.4 \times 200 = 80$$

Both give 80. A calculator is fine for the dividing — the thinking is in choosing the steps.

WHAT ABOUT ALL THE OTHER OUTCOMES?

Every probability in a sample space adds up to 1. So if you know one, you can find the rest by subtracting.

$$\text{A bag of 8 counters, 2 are red. } P(\text{red}) = 2/8 \quad P(\text{not red}) = 8/8 - 2/8 = 6/8$$

$$\text{Check: } 2/8 + 6/8 = 8/8 = 1$$