

1 Single events

A bag holds 5 red beads, 7 white beads and some blue beads. $P(\text{blue}) = 0.4$

- a) How many blue beads are in the bag?
b) Find $P(\text{not red})$.

12 beads are 0.6 of the bag,

$$12 \div 0.6 = 20$$

$$a) 20 - 12 = 8$$

$$b) \frac{15}{20} = \frac{3}{4}$$

2 Relative frequency

A spinner is biased. Asha spins it 40 times and gets 5 on 12 of them. Ben spins it 200 times and gets 69 fives.

- a) Whose results give the better estimate of $P(5)$? Why?
b) Use all the results to estimate $P(5)$.

a) Ben's: more spins

$$b) \frac{81}{240} = 0.3375$$

3 Expected outcomes

The probability that a seed grows into a plant is 0.85

- a) 240 seeds are planted. How many are expected to grow?
b) How many seeds should be planted to expect at least 300 plants?

$$a) 0.85 \times 240 = 204$$

$$b) 300 \div 0.85 = 352.9..., \text{ so } 353 \text{ seeds}$$

4 Sample space diagrams

Fair spinners A and B are spun and the two scores multiplied.

- a) Find $P(\text{the product is more than 10})$.
b) Is a multiple of 3 more likely than not?

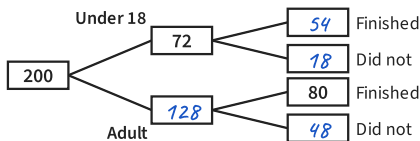
A	x	1	2	3	4
	1	1	2	3	4
B	3	3	6	9	12
	5	5	10	15	20

$$a) \frac{3}{12} = \frac{1}{4} \quad b) \frac{6}{12} : \text{no, evens}$$

5 Frequency trees

200 people took a quiz. 3 out of 4 of the under 18s finished.

- a) Complete the frequency tree.
b) Find $P(\text{adult who did not finish})$.



$$b) \frac{48}{200} = \frac{6}{25}$$

Probability

revision mat answers

Higher A

6 Two way tables

60 students each chose one trip.

- a) Find $P(\text{a student chose the museum})$.
b) A zoo student is picked. Find $P(\text{Year 11})$.

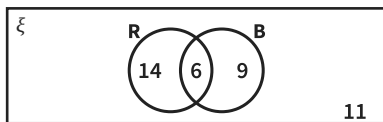
	Zoo	Museum	Total
Year 10	18	14	32
Year 11	19	9	28
Total	37	23	60

$$a) \frac{23}{60} \quad b) \frac{19}{37}$$

7 Venn diagrams

40 climbers. R: uses ropes. B: boulders.

- a) Find $P(R \cap B')$.
b) A boulderer is picked. Find $P(\text{uses ropes})$.



$$a) \frac{14}{40} = \frac{7}{20} \quad b) \frac{6}{15} = \frac{2}{5}$$

8 The AND and OR rules

$P(\text{Ali's train is late}) = 0.1$ and $P(\text{his bus is late}) = 0.25$. The two are independent.

- a) Find $P(\text{both are late})$.
b) Find $P(\text{at least one is late})$.

$$a) 0.1 \times 0.25 = 0.025$$

$$b) 1 - 0.9 \times 0.75 = 0.325$$

9 Tree diagrams

A tin holds 4 dark and 6 milk chocolates. Kim takes two at random and eats them.

- a) Find $P(\text{both are milk})$.
b) Find $P(\text{both are the same kind})$.

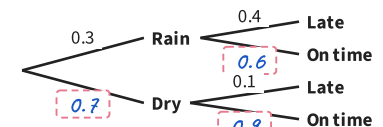
$$a) \frac{6}{10} \times \frac{5}{9} = \frac{1}{3}$$

$$b) \frac{30}{90} + \frac{12}{90} = \frac{7}{15}$$

10 Conditional probability

Rain, and Eva being late for work.

- a) Find $P(\text{Eva is late})$.
b) Eva is late. Find $P(\text{it rained})$.



$$a) 0.12 + 0.07 = 0.19$$

$$b) 0.12 \div 0.19 = \frac{12}{19}$$