Homework — Part 1: Review of the lesson

6 problems. Solve them in your notebook. No calculator — leave answers as simplified fractions.

Key formulas

$P(A) = \frac{n(A)}{n(U)}$ $P(A') = 1 - P(A)$ relative frequency = frequency ÷ trials expected number $= np$

"A or B" = A, or B, or both. Two dice → 36 outcomes.

Level 1 — Basic

1. A bag contains 6 red, 4 white and 2 black counters. One counter is taken at random.

(a) **Find** P(white). [1]

(b) **Find** P(not red). [2]

2. In the last 60 days it rained on 21 days.

(a) **Estimate** the probability that it rains on a day. [1]

(b) **Find** the expected number of rainy days in the next 20 days. [2]

Level 2 — Intermediate

3. Cards numbered 1 to 20 are shuffled and one card is taken. **Find** P(a multiple of 3), P(not a multiple of 3) and P(a prime number). [3]

4. Two fair dice are rolled. **Find** P(sum = 9), P(sum ≥ 10) and P(both numbers are even). Use a grid. [4]

Level 3 — Exam-style

5. Paper 1

200 people were asked what they drink in the morning.

	Tea	Coffee	Total
Male	45	55	100
Female	60	40	100

A person is chosen at random. **Find** the probability that the person

(a) drinks tea; [1]

(b) is female and drinks coffee; [1]

(c) is male or drinks tea. [2]

6. Paper 1

A fair spinner has 5 equal sectors labelled 1, 2, 2, 3, 4.

(a) **Write down** P(2). **[1]**

(b) The spinner is spun 200 times. **Find** the expected number of 2s. **[2]**

(c) **Find** the probability that the spinner does **not** land on 2. **[1]**

(d) **Find** P(an odd number). **[1]**

Answers (short)

1	(a) $\frac{1}{3}$ (b) $\frac{1}{2}$
2	(a) $\frac{21}{60} = 0.35$ (b) 7
3	$\frac{3}{10}$; $\frac{7}{10}$; $\frac{2}{5}$
4	$\frac{1}{9}$; $\frac{1}{6}$; $\frac{1}{4}$
5	(a) $\frac{21}{40}$ (b) $\frac{1}{5}$ (c) $\frac{4}{5}$
6	(a) $\frac{2}{5}$ (b) 80 (c) $\frac{3}{5}$ (d) $\frac{2}{5}$