

KS3 – Relative Frequency – Answers

Section A – Relative Frequency

Q1

- a) $28/50 = 14/25$
- b) 0.56
- c) $22/50 = 0.44$
- d) 22
- e) Heads

Q2

- a) $36/80 = 0.45$
- b) $28/80 = 0.35$
- c) $16/80 = 0.20$
- d) $0.45 + 0.35 + 0.20 = 1$
- e) Red

Q3

- a) $17/120$
- b) 0.142
- c) $1/6$
- d) No
- e) Random variation/chance means experimental results need not match theoretical probability exactly.

Q4

- a) $13/20 = 0.65$
- b) $104/200 = 0.52$
- c) Ben's
- d) Ben's
- e) With more trials, random variation tends to have less effect on the overall relative frequency.

Q5

- a) $42/60 = 0.7$
- b) $18/60 = 0.3$
- c) Use 0.7 as an estimate of the probability of scoring.

d) Probability predicts likelihood, not a certain individual outcome.

Section B – Expected Outcomes

Q6

- a) 0.5
- b) 150
- c) 150
- d) No — expected frequency is an estimate; random variation can occur.
- e) $147/300 = 0.49$

Q7

- a) 40
- b) 40
- c) 120
- d) 80
- e) Random variation means observed frequencies can differ from expected frequencies.

Q8

- a) $4/10 = 0.4$
- b) $3/10 = 0.3$
- c) $3/10 = 0.3$
- d) 80
- e) 60

Q9

- a) $0.34 + 0.28 + 0.22 + 0.16 = 1$
- b) 170
- c) 140
- d) 110
- e) 80

Q10

- a) $36/50 = 0.72$
- b) 72
- c) 180
- d) 70
- e) Performance varies; relative frequency only gives an estimate.

Q11

- a) $18/400 = 0.045$
- b) 90

c) 1,910

d) $38/1000 = 0.038$

e) The sample of 1,000

f) It is larger, so it would generally give a more reliable estimate with less effect from random variation.