Year 9 Probability – Developing

ANSWER KEY HappyKids.fit

Answers and worked solutions · 10 questions

A. Use probability

1. x = 0.15; P(4) = 0.15

The probabilities add up to 1: 0.1 + 0.3 + 4x = 1
4x = 0.6, so x = 0.15
P(4) = x = 0.15

2. 2/15. The events are not independent: the first choice changes the second probability.

P(red first) = 4/10; then 3 of the 9 left are red
4/10 × 3/9 = 2/15

3. 15/28. The events are not independent: the first choice changes the second probability.

lemon then orange: 5/8 × 3/7; orange then lemon: 3/8 × 5/7; each is 15/56
Add the two orders (mutually exclusive): 15/28

4. 9/41

18 of the 82 fit
P = 18/82 = 9/41

5. 1/5; 4/5

Total: 3 + 7 + 10 + 5 = 25
plays neither: 5, so 1/5
plays football or tennis (or both): 20, so 4/5

6. expected 150; far more blues than expected after many spins, so the spinner may be biased

P(blue) = 3/10
Expected: 3/10 × 500 = 150
Observed 200: a big difference for 500 spins

7. 0.245

P(not A) = 1 − 0.3 = 0.7; P(not B) = 1 − 0.65 = 0.35
0.7 × 0.35 = 0.245

8. 1/10

The grid has 5 × 8 = 40 equally likely outcomes; 4 of them work
P = 4/40 = 1/10

9. 1/6

Numbers that work: 1, 4, 9, 16
P = 4/24 = 1/6

10. For independent events, multiply: 0.8 × 0.6 = 0.48 (adding can even give more than 1).

Error: added instead of multiplied
P(A and B) = P(A) × P(B) for independent events
0.8 × 0.6 = 0.48