# Year 8 Probability – Mixed Practice

ANSWER KEY

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Answers and worked solutions · 30 questions

## A. Mixed practice (mixed order)

**1. 32%**

The event and its complement have probabilities that add up to 1

1 − 68% = 32%

**2. 9/16**

16 equally likely outcomes, 9 successful

P = 9/16 = 9/16

**3. 7/10**

The event and its complement have probabilities that add up to 1

1 − 3/10 = 7/10

**4. 1/12**

24 equally likely outcomes, 2 successful

P = 2/24 = 1/12

**5. 35%**

The event and its complement have probabilities that add up to 1

1 − 65% = 35%

**6. 1/9**

A 6 × 6 grid gives 36 equally likely outcomes; 4 of them work

P = 4/36 = 1/9

**7. 70%**

The event and its complement have probabilities that add up to 1

1 − 30% = 70%

**8. 20 outcomes**

Each of the spinner's outcomes can go with each dice outcome

4 × 5 = 20

**9. 5/8**

The event and its complement have probabilities that add up to 1

1 − 3/8 = 5/8

**10. experimental 0.54, theoretical 0.5: they are close**

Experimental: 54 ÷ 100 = 0.54

Theoretical: 1/2 = 0.5

Close, as expected with many trials

**11. 0.35**

The event and its complement have probabilities that add up to 1

1 − 0.65 = 0.35

**12. 5/12**

A 6 × 6 grid gives 36 equally likely outcomes; 15 of them work
P = 15/36 = 5/12

**13. 0.32**

The event and its complement have probabilities that add up to 1
1 − 0.68 = 0.32

**14. 2/5**

20 equally likely outcomes, 8 successful
P = 8/20 = 2/5

**15. 65%**

The event and its complement have probabilities that add up to 1
1 − 35% = 65%

**16. H1, H2, H3, H4, H5, H6, T1, T2, T3, T4, T5, T6**

Heads with each number: H1, H2, H3, H4, H5, H6
Tails with each number: T1, T2, T3, T4, T5, T6

**17. 8/25**

The event and its complement have probabilities that add up to 1
1 − 17/25 = 8/25

**18. 29/150; expected 50; probably not: the difference is small for this many rolls**

Experimental: 58/300 = 29/150
Expected: 1/6 × 300 = 50
Difference: 8

**19. 60%**

The event and its complement have probabilities that add up to 1
1 − 40% = 60%

**20. 5/18**

A 6 × 6 grid gives 36 equally likely outcomes; 10 of them work
P = 10/36 = 5/18

**21. 1/8**

16 equally likely outcomes, 2 successful
P = 2/16 = 1/8

**22. 7/20**

The event and its complement have probabilities that add up to 1
1 − 13/20 = 7/20

**23. Complementary events add up to 1: P(not late) = 1 − 0.45 = 0.55.**

Error: the probabilities do not add up to 1
1 − 0.45
= 0.55

**24. experimental 99/200; theoretical 1/2; expected 100**

Experimental: 99/200 = 99/200
Theoretical: 2/4 = 1/2
Expected: 1/2 × 200 = 100

**25. 1/9**

A 6 × 6 grid gives 36 equally likely outcomes; 4 of them work
P = 4/36 = 1/9

**26. Complementary events add up to 1: P(not late) = 1 − 0.05 = 0.95.**

Error: the probabilities do not add up to 1
1 − 0.05
= 0.95

**27. 36 outcomes**

Each of the spinner's outcomes can go with each dice outcome
6 × 6 = 36

**28. 7/12**

12 equally likely outcomes, 7 successful
P = 7/12 = 7/12

**29. No. Only complementary events do. For one dice, P(6) = 1/6 and P(1) = 1/6 add up to 1/3.**

List or count the outcomes
Only complementary events do. For one dice, P(6) = 1/6 and P(1) = 1/6 add up to 1/3.
Decide

**30. 5/9**

The event and its complement have probabilities that add up to 1
1 − 4/9 = 5/9