Relative frequency: more trials

ANSWERS

1

A spinner is spun. Green is counted.
Complete the table. Then give the best estimate of the probability.

Spins	20	100	400
Green	11	41	148
Relative frequency	0.55	0.41	0.37

Best estimate: 0.37

2

A bottle top is flipped.
Upside down is counted.
Complete the table. Then give the best estimate of the probability.

Flips	10	50	250
Upside down	6	22	105
Relative frequency	0.6	0.44	0.42

Best estimate: 0.42

3

A paper plane is thrown at a hoop.
Going through is counted.
Complete the table. Then give the best estimate of the probability.

Throws	20	80	400
Through	5	26	124
Relative frequency	0.25	0.325	0.31

Best estimate: 0.31

4

A card is picked and put back.
A heart is counted. Complete the table.
Then give the best estimate of the probability.

Picks	25	100	500
Heart	4	23	128
Relative frequency	0.16	0.23	0.256

Best estimate: 0.256

5

Ines, Dev and Ruby each spin the same spinner. Use all of their results to give the best estimate of the probability of blue.

	Ines	Dev	Ruby	Total
Spins	30	50	20	100
Blue	8	17	7	32

32 ÷ 100 = 0.32

Best estimate: 0.32

6

Zoe and Sami each roll the same dice to estimate the probability of a six.
Complete the table. Whose result gives the better estimate? Why?

	Rolls	Sixes	Relative frequency
Zoe	30	9	0.3
Sami	800	132	0.165

Whose? Sami's

Why? more rolls

7

Ana and Ben flip the same coin.
Ravi says the best estimate of the probability of heads is (0.7 + 0.4) ÷ 2 = 0.55.
Explain his mistake.
Then give the best estimate.

	Flips	Heads
Ana	10	7
Ben	40	16

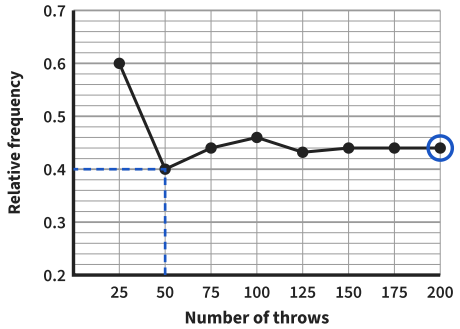
He should add the heads and the flips.

7 + 16 = 23 heads in 50 flips

Best estimate: 0.46

8

Lila throws a beanbag at a target.
The graph shows the relative frequency of a hit. (a) Write down the relative frequency after 50 throws. (b) Give the best estimate of the probability of a hit.



(a) 0.4 (b) 0.44

Relative frequency: more trials *further practice*

ANSWERS

9

Amir records how many days his bus is late. The table shows his totals so far. Give the best estimate of the probability that his bus is late.

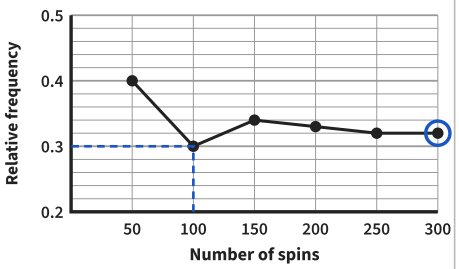
Days	10	40	160
Late	3	10	36

36 ÷ 160 = 0.225

Answer *0.225*

10

The graph shows the relative frequency of a spinner landing on red.
(a) How many times did it land on red in the first 100 spins? (b) Give the best estimate of the probability of red.



0.3 × 100 = 30

(a) *30 times* **(b)** *0.32*

11

Lena and Omar each spin the same spinner. Use both results to give the best estimate of the probability of red.

	Spins	Relative frequency of red
Lena	50	0.4
Omar	150	0.3

20 + 45 = 65 reds in 200 spins

Answer *0.325*

12

A café counts how many customers order tea. The table shows its totals so far. How many of the next 1000 customers would you expect to order tea?

Customers	50	200	800
Ordered tea	18	64	248

0.31 × 1000 = 310

Answer *310 customers*

13

Nia spins a spinner 60 times, then 40 more times. The table shows the relative frequency of red after 60 spins and after all 100. How many reds were in the last 40 spins?

Spins	60	100
Relative frequency of red	0.35	0.3

0.35 × 60 = 21, 0.3 × 100 = 30

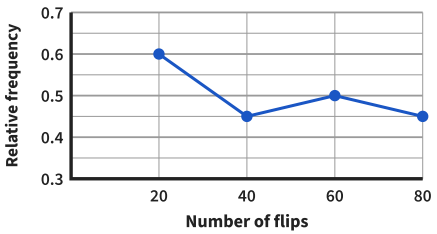
30 – 21 = 9

Answer *9 reds*

14

A drawing pin is flipped. Plot the relative frequencies of heads from the table, and join them. Then give the best estimate.

Flips	20	40	60	80
Relative frequency	0.6	0.45	0.5	0.45



Best estimate *0.45*

15

Ade flips a coin 20 times and gets heads 12 times (0.6). Bella flips it 180 times and gets heads 72 times (0.4).
Put their results together.
Explain why the answer is closer to Bella's 0.4 than to Ade's 0.6.

84 heads in 200 flips

Bella did far more of the flips, so her result counts for more.

Together *0.42*

16

Kit spins a spinner 5 times and it lands on red 4 times. Kit says the probability of red is 0.8. Mo says Kit should spin it 500 times first. Who is right? Explain.

5 spins is too few: it could be luck. More trials give a more reliable estimate.

Answer *Mo*