The AND and OR Rules

1

A fair coin is flipped and a fair spinner numbered 1 to 5 is spun. Complete the grid. Find P(a tail and a 3).

	1	2	3	4	5
H	H1	H2	H3	H4	H5
T					

P(tail) = $\frac{1}{2}$ P(3) = ☐

$\frac{1}{2}$ × ☐ = ☐

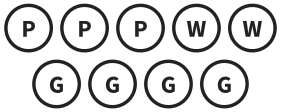
check: ☐ out of ☐

and: multiply

Answer _____

2

A bag holds 3 pink, 2 white and 4 grey counters. One is taken at random. Find P(pink or grey).



P(pink) = ☐ P(grey) = ☐

☐ + ☐ = ☐

check: ☐ out of ☐

or: add

Answer _____

3

The probability that Ana's train is late is $\frac{1}{3}$.

The probability that it snows is $\frac{1}{4}$.

The two are independent.
Find the probability that the train is late and it snows.

☐ ○ ☐ = ☐

and: multiply or: add

Answer _____

4

A biased spinner lands on A, B, C or D.
The table shows the probabilities.
Find P(A or C).

Letter	A	B	C	D
Probability	0.12	0.4	0.3	0.18

☐ ○ ☐ = ☐

and: multiply or: add

Answer _____

5

A bag holds 2 pink and 3 grey counters.
Zoe takes a counter and puts it back.
Then she takes another. Find the probability that both counters are the same colour.



pink, pink ☐ × ☐ = ☐

grey, grey ☐ × ☐ = ☐

or: add ☐ + ☐ = ☐

Answer _____

6

A spinner lands on red, blue or green.
(a) It is spun once. Find P(red or green).
(b) It is spun twice. Find P(blue both times).

Colour	Red	Blue	Green
Probability	$\frac{1}{5}$	$\frac{3}{5}$	$\frac{1}{5}$

_____

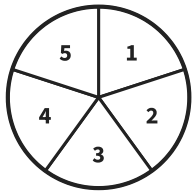
_____

(a) _____

(b) _____

7

Lily rolls a fair dice and spins this fair spinner. Find the probability of a 6 on the dice and an odd number on the spinner.



_____

Answer _____

8

Two fair coins are flipped.

Tom says P(two heads) = $\frac{1}{2} + \frac{1}{2} = 1$.

Explain Tom's mistake.
Then find P(two heads).

_____

_____

Answer _____

The AND and OR Rules *further practice*

9

The probability that a football team wins on Saturday is $\frac{2}{3}$. The probability that it snows on Saturday is $\frac{1}{10}$.
The two are independent.
Find the probability that the team wins and it snows.

Answer _____

10

One of these cards is picked at random.
Find the probability that it shows an E or a G.

G	R	E	E	N	H	O	U	S	E

Answer _____

11

Each day Kai walks to school, gets a lift or cycles. P(walks) = $\frac{1}{2}$ and P(gets a lift) = $\frac{1}{3}$. Find the probability that he walks or gets a lift.

Answer _____

12

The probability that Femi's bus is late is $\frac{1}{5}$ each day, independently.
Find the probability that it is late on Monday and not late on Tuesday.

Answer _____

13

A spinner lands on red with probability $\frac{1}{3}$ and on blue with probability $\frac{2}{3}$.
It is spun twice. Find the probability that it lands on the same colour both times.

Answer _____

14

Which is more likely: rolling a 5 or a 6 with one fair dice, or getting two heads when two fair coins are flipped?
Show how you know.

Answer _____

15

The probability that Omar's train is on time is $\frac{4}{5}$. Getting a seat is independent of the train being on time.
The probability that the train is on time and he gets a seat is $\frac{8}{15}$.
Find the probability that he gets a seat.

Answer _____

16

Two fair dice are rolled. Sara says getting two sixes is just as likely as getting a 1 and a 2, in either order. Is Sara right? Explain.

	1	2	3	4	5	6
1						
2						
3						
4						
5						
6						

Answer _____