

Interleaved: probability AND and OR

ANSWERS

1

A spinner lands on red with probability 0.3 and on blue with probability 0.25. Find the probability that it lands on red or blue.

Which method? ☐ AND, replaced: multiply

☐ AND, not replaced: multiply ☒ OR: add

red or blue, which cannot both happen: add, $0.3 + 0.25$

Answer 0.55

2

A bag holds 3 red and 5 blue counters. A counter is taken, put back, and a second is taken. Find the probability that both are red.

Which method? ☐ AND, replaced: multiply

☐ AND, not replaced: multiply ☒ OR: add

$3/8 \times 3/8$

Answer $\frac{9}{64}$

3

The same bag holds 3 red and 5 blue counters. Two counters are taken without putting the first back. Find the probability that both are red.

Which method? ☐ AND, replaced: multiply

☒ AND, not replaced: multiply ☐ OR: add

$3/8 \times 2/7$: one fewer red, one fewer counter

Answer $\frac{3}{28}$

4

The probability a train is late is 0.15. The probability it is cancelled is 0.05. It cannot be both. Find the probability that it is late or cancelled.

Which method? ☐ AND, replaced: multiply

☐ AND, not replaced: multiply ☒ OR: add

$0.15 + 0.05$

Answer 0.2

5

A coin is flipped and a fair dice is rolled. Find the probability of a head and a 6.

Which method? ☐ AND, replaced: multiply

☐ AND, not replaced: multiply ☒ OR: add

$1/2 \times 1/6$

Answer $\frac{1}{12}$

6

A drawer holds 4 black and 6 grey socks. Two socks are taken out at random. Find the probability that both are grey.

Which method? ☐ AND, replaced: multiply

☒ AND, not replaced: multiply ☐ OR: add

$6/10 \times 5/9$

Answer $\frac{1}{3}$

7

The probability of rain on Saturday is 0.4. The probability of rain on Sunday is also 0.4, whatever happens on Saturday. Find the probability it rains on both days.

Which method? ☐ AND, replaced: multiply

☐ AND, not replaced: multiply ☒ OR: add

0.4×0.4

Answer 0.16

8

A letter is picked at random from the word PROBABILITY. Find the probability that it is a B or an I.

Which method? ☐ AND, replaced: multiply

☐ AND, not replaced: multiply ☒ OR: add

$2/11 + 2/11$

Answer $\frac{4}{11}$

Interleaved: probability AND and OR further practice

ANSWERS

9

A box holds 7 milk and 3 dark chocolates. Kai eats two at random. Find the probability that both are dark.

$3/10 \times 2/9$

Answer $\frac{1}{15}$

10

Ama scores a penalty with probability 0.7 each time, whatever happened before. She takes two. Find the probability she scores both.

0.7×0.7

Answer 0.49

11

The probability a team wins a match is 0.45. The probability it draws is 0.3. Find the probability that it does not lose.

not lose means win or draw: $0.45 + 0.3$

Answer 0.75

12

A captain and a vice captain are picked at random from 5 girls and 4 boys. Find the probability that both are boys.

$4/9 \times 3/8$

Answer $\frac{1}{6}$

13

A card is picked from ten cards numbered 1 to 10, put back, and a second card is picked. Find the probability that both are even.

$5/10 \times 5/10$

Answer $\frac{1}{4}$

14

The probability a bus is on time is 0.65. The probability it is early is 0.12. Find the probability it is on time or early.

$0.65 + 0.12$

Answer 0.77

15

A bag holds 2 red and 3 green counters. Two are taken without putting the first back. Find the probability of one of each colour.

*red then green, or green then red:
 $2/5 \times 3/4 + 3/5 \times 2/4$*

Answer $\frac{3}{5}$

16

Jo rolls two fair dice. She says the probability of two sixes is $\frac{1}{6} + \frac{1}{6} = \frac{1}{3}$. Explain her mistake and find the right probability.

*a six and a six is AND, so multiply:
 $1/6 \times 1/6$*

Answer $\frac{1}{36}$