

GCSE Maths: Independent events: the AND rule and the OR rule (Foundation): worksheet

GCSE Maths - Probability - Foundation - Lesson 23.5

Name: _____

Date: _____

Score: _____

15 questions. Write your answers in the spaces. Answers and step-by-step help are free at websink.site/gcse/maths/ch23-probability/foundation/independent-events-the-and-rule-and-the-or-rule/

Exercise 23F Independent events: AND and OR

Non-calculator

1 A fair coin is tossed and a fair die is rolled. Find the probability of...

(a) heads and a 3

Answer: _____

(b) tails and an even number

Answer: _____

(c) heads and a number bigger than 4

Answer: _____

2 Two fair coins are tossed. Find the probability that both coins land on heads.

Answer: _____

3 A fair die is rolled twice. Find the probability of a 6 both times.

Answer: _____

4 A and B are independent events. Work out $P(A \text{ and } B)$.

(a) $P(A) = 0.3$, $P(B) = 0.5$

Answer: _____

(b) $P(A) = 0.6$, $P(B) = 0.2$

Answer: _____

(c) $P(A) = 0.9$, $P(B) = 0.9$

Answer: _____

(d) $P(A) = 0.04$, $P(B) = 0.5$

Answer: _____

5 A and B are mutually exclusive events. Work out $P(A \text{ or } B)$.

(a) $P(A) = 0.3$, $P(B) = 0.5$

Answer: _____

(b) $P(A) = 0.15$, $P(B) = 0.25$

Answer: _____

(c) $P(A) = 0.07$, $P(B) = 0.4$

Answer: _____

- 6** The probability that a spinner lands on red is 0.2 and the probability that it lands on blue is 0.3. Work out the probability that it lands on red or blue.

Answer:

- 7** A fair die is rolled once. Find the probability of...

(a) a 1 or a 6

Answer:

(b) a 2, a 3 or a 4

Answer:

- 8** Pat takes a bus and then a train to work. The probability that the bus is late is 0.2 and the probability that the train is late is 0.1. The two are independent. Find the probability that...

(a) both are late

Answer:

(b) neither is late

Answer:

(c) at least one is late

Answer:

- 9** Find the probability of getting at least one...

(a) head when two fair coins are tossed

Answer:

(b) head when three fair coins are tossed

Answer:

(c) 6 when a fair die is rolled twice

Answer:

- 10** A fair spinner has the numbers 1 to 5 on equal sections. It is spun and a fair coin is tossed. Find the probability of a number bigger than 3 and tails.

Answer:

- 11** The probability that a seed germinates is 0.8. Two seeds are planted and they grow independently. Find the probability that exactly one of them germinates.

Answer:

- 12** Ali says: "The probability of getting a 6 on both of two rolls is $\frac{1}{6} + \frac{1}{6} = \frac{1}{3}$." Explain his mistake and give the correct answer.

Answer:

- 13** Dan says: "P(rain on Saturday) = 0.3 and P(rain on Sunday) = 0.4, so P(rain on both days) = $0.3 + 0.4 = 0.7$." Explain why Dan cannot be correct without working out the answer.

Answer:

- 14** For each pair of events say whether they are mutually exclusive. Give a reason. A fair die is rolled once.

(a) A: the score is even. B: the score is 6.

Answer:

(b) A: the score is even. B: the score is 5.

Answer:

15 Find the probability of getting at least one 6 when a fair die is rolled 3 times. Give your answer as a fraction.

Answer:

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