Probability of a single event

Grade 2 | Worked solutions

GCSE Statistics topic practice

1 Hana rolls a fair six-sided dice numbered 1 to 6.

a. Write down the probability that the dice lands on 4. (1)

b. Write down the probability that the dice lands on an even number. (1)

c. Write down the probability that the dice lands on a number greater than 4. (1)

(3 marks)

a) one 4 out of 6 numbers

$\frac{1}{6}$

b) even numbers are 2, 4, 6

$\frac{3}{6} = \frac{1}{2}$

The probability of an even number is $\frac{1}{2}$

c) numbers greater than 4 are 5 and 6

$\frac{2}{6} = \frac{1}{3}$

a) $\frac{1}{6}$ b) $\frac{1}{2}$ c) $\frac{1}{3}$

2 A jar contains 20 sweets. 8 are strawberry, 7 are lemon and 5 are mint.

Aisha takes one sweet from the jar at random.

a. Write down the probability that the sweet is lemon. (1)

b. Work out the probability that the sweet is **not** mint. Give your answer as a fraction in its simplest form. (2)

c. Write down the probability that the sweet is orange. (1)

(4 marks)

a) 7 lemon out of 20 sweets

$\frac{7}{20}$

b) sweets that are not mint

$20 - 5 = 15$

$\frac{15}{20} = \frac{3}{4}$

c)

There are no orange sweets

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It is impossible, so the probability is 0

a) $\frac{7}{20}$ b) $\frac{3}{4}$ c) 0

3 The diagram shows a fair spinner. It has 8 equal sections.

Jess spins the spinner once.

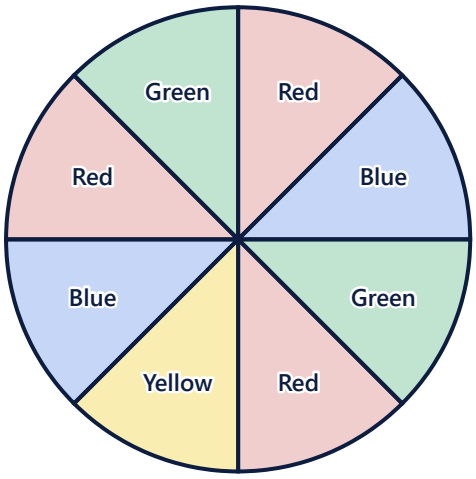
a. Write down the colour the spinner is least likely to land on. (1)

b. Write down the probability that the spinner lands on Blue. (1)

c. Work out the probability that the spinner lands on Red or Green. (1)

d. Jess says, "There are 4 colours, so the probability of Yellow is $\frac{1}{4}$."

Explain why Jess is wrong. (1)



(4 marks)

a) the colour with the fewest sections

Yellow

b) 2 Blue sections out of 8

$\frac{2}{8} = \frac{1}{4}$

The probability of Blue is $\frac{1}{4}$

c) 3 Red sections and 2 Green sections

$3 + 2 = 5$

$\frac{5}{8}$

d)

The colours are not equally likely

Only 1 of the 8 sections is Yellow

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so the probability of Yellow is $\frac{1}{8}$

a) Yellow b) $\frac{1}{4}$ c) $\frac{5}{8}$ d) it is $\frac{1}{8}$

4 A box contains only milk, dark and white chocolates. Sofia takes one chocolate from the box at random.

The table shows the probability of taking each type of chocolate.

Type	Milk	Dark	White
Probability	0.45	0.35	

a. Work out the probability that Sofia takes a white chocolate. (2)

b. Work out the probability that Sofia does **not** take a milk chocolate. (1)

c. Which type of chocolate is there most of in the box? Give a reason for your answer. (1)

(4 marks)

a) the probabilities add up to 1

$0.45 + 0.35 = 0.8$

$1 - 0.8 = 0.2$

The probability of white is 0.2

b) not milk

$1 - 0.45 = 0.55$

c)

Milk

It has the highest probability, 0.45

a) 0.2 b) 0.55 c) Milk, highest probability

5 200 tickets are sold for a school raffle. One ticket is picked at random to win the prize.

a. Amir buys 10 tickets.
Work out the probability that Amir wins the prize. Give your answer as a fraction in its simplest form. (2)

b. The probability that Beth wins the prize is $\frac{3}{40}$.
Work out the number of tickets Beth bought. (2)

c. Carl buys 100 tickets. He says, "I am certain to win the prize."
Explain why Carl is wrong. (1)

(5 marks)

a) 10 tickets out of 200

$\frac{10}{200} = \frac{1}{20}$

The probability that Amer wins is $\frac{1}{20}$

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b) find $\frac{3}{40}$ of 200

$200 \div 40 = 5$

$5 \times 3 = 15$

Beth bought 15 tickets

c) 100 tickets out of 200

$\frac{100}{200} = \frac{1}{2}$

Certain means a probability of 1

Carl has an even chance, not a certain one

a) $\frac{1}{20}$ b) 15 tickets c) probability is $\frac{1}{2}$, not 1

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