



# FUNCTIONAL SKILLS MATHEMATICS

AQA | Edexcel | City & Guilds | Open Awards | NCFE | Highfield

Level 2

## Probability

### Materials

- You **cannot** use a calculator for **questions** with this symbol.



### Instructions

- Answer **all** questions.
- Answer questions on separate paper.

### Information and Advice

- The marks for each question are shown in brackets – use this as a guide on how long to spend on each question.
- Read each question carefully before you answer it.
- Check you answers.



**Q1** George rolls a standard, fair, 6-sided die.

**1(a)** What is the probability he rolls an even number?

**[1 mark]**

**1(b)** What is the probability he rolls an odd number?

**[2 marks]**

**1(c)** What is the probability he rolls a square number?

**[2 marks]**



**Q2** Jill is selling 20 shirts: 5 blue, 8 white and 3 red - the rest are black.

**2(a)** What is the probability of choosing a red shirt at random?

**[1 mark]**

**2(b)** What is the probability of choosing a black or white shirt at random?

**[2 marks]**



**Q3** Brandon has three types of sandwiches. There are 6 ham and cheese, 10 BLTs and 4 tuna sandwiches.

**3(a)** If he picks one at random, what is the probability he chooses a BLT?

**[1 mark]**

**3(b)** If he picks one at random, what is the probability he chooses a BLT or ham and cheese sandwich?

**[1 mark]**



**Q4** Alicia has a box of newborn puppies – 3 black Labradors, 4 chocolate Labradors and a golden retriever. She chooses one at random, without looking.

**4(a)** What is the probability she chooses a black Labrador?

**[1 mark]**

**4(b)** What is the probability she chooses the golden retriever?

**[1 mark]**



- Q5** Zakaria has a bag containing 30 red marbles and 10 blue marbles only. She reaches in and grabs a marble at random.
- 5(a)** What is the probability she grabs a red marble? **[1 mark]**
- 5(b)** What is the probability she grabs a white marble? **[1 mark]**



- Q6**
- 6(a)** Frazer is at a European roulette wheel. Among the 37 numbers available, there is a green zero; the rest are red and black, in even amounts. What is the probability of getting a red number? **[2 marks]**
- 6(b)** An American roulette wheel has 38 numbers: that is, the same as a European wheel, with the addition of a green double 0. Has the probability of landing on a green number doubled? **[2 marks]**
- 6(c)** Which style of roulette wheel has a higher probability of landing on black? **[2 marks]**



- Q7** The manager of a football team assigns 20 players a number each; 1 – 8 for defenders, 9 – 16 for midfielders and 17 – 20 for forwards. A team captain chooses one number at random, and that player joins his team.
- 7(a)** What is the probability that their choice is a midfielder? **[1 mark]**
- 7(b)** What is the probability that their choice is a forward? **[1 mark]**



- Q8** Poppy is flying from London to Madrid. She arrives with 9 centre seats, 3 window seats and 3 aisle seats available. When she reaches the desk, she is given a seat at random. Express the probability she does **not** have a centre seat:
- 8(a)** as a fraction. **[1 mark]**
- 8(b)** as a decimal. **[1 mark]**
- 8(c)** as a percentage. **[1 mark]**
- Q9** Lauren picks a random card from a standard pack of 52, divided equally amongst four suits: spades, clubs, hearts and diamonds. They are then assigned a value of Ace, 2 – 10, Jack, Queen or King.
- 9(a)** What is the probability she picks a picture card (i.e. Jack, Queen or King)? **[1 mark]**
- 9(b)** What is the probability she chooses a spade? **[1 mark]**
- Q10**
- 10(a)** The probability of Jane and her partner winning a tennis match is 0.6. What is the probability they don't win the match? **[1 mark]**
- 10(b)** Assuming the probability of winning a match is independent of all other results, what is the probability they win three games out of three? **[2 marks]**
- 11** A spinner has a probability of landing on 1 with a probability of 0.3. What is the probability that, if spun three times, it does not land on 1 on all three spins? **[3 marks]**