

## PROBABILITY - PRACTICE QUESTIONS

1.

Adam has a set of six cards.

The cards have A, A, B, B, B and C on them.

Adam is going to pick a card at random.

(a) Circle the word that best describes the probability of choosing a C.

Impossible

Unlikely

Evens

Likely

Certain

(b) Circle the word that best describes the probability of choosing a B.

Impossible

Unlikely

Evens

Likely

Certain

(c) Circle the word that best describes the probability of choosing a D.

Impossible

Unlikely

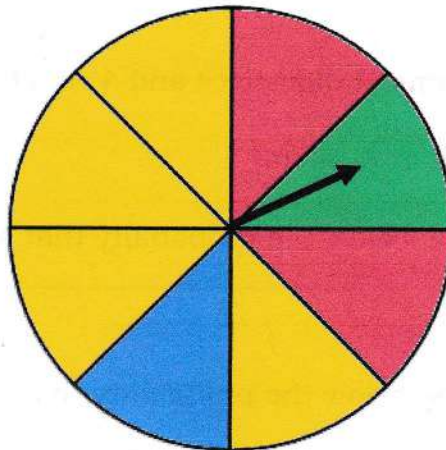
Evens

Likely

Certain

2.

Below is a fair spinner.



Amber is going to spin the spinner.

(a) Circle the word that best describes the probability of landing on yellow.

Impossible

Unlikely

Evens

Likely

Certain

(b) Circle the word that best describes the probability of landing on white.

Impossible

Unlikely

Evens

Likely

Certain

(c) Circle the word that best describes the probability of landing on red.

Impossible

Unlikely

Evens

Likely

Certain

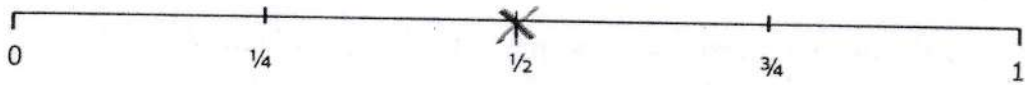
3.

Christina has a set of eight cards.

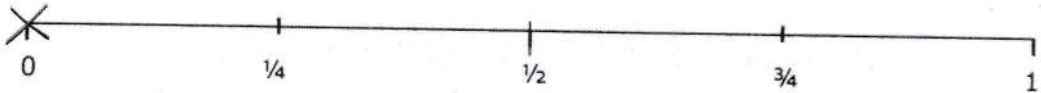
The cards have the numbers 1, 1, 2, 2, 2, 2, 3 and 4 on them.

Christina is going to pick a card at random.

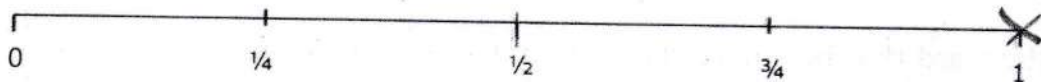
(a) Mark on the probability scale below the probability that she picks a 2.



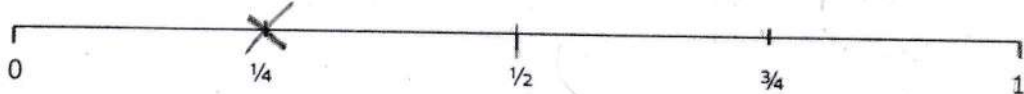
(b) Mark on the probability scale below the probability that she picks a 5.



(c) Mark on the probability scale below the probability that she picks a whole number.



(d) Mark on the probability scale below the probability that she picks a 1.



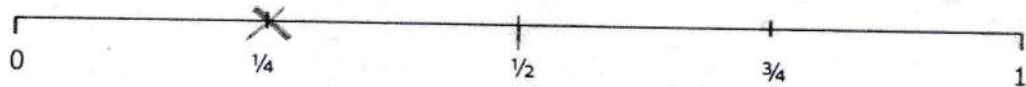
4.

Bertha has a tin of biscuits.

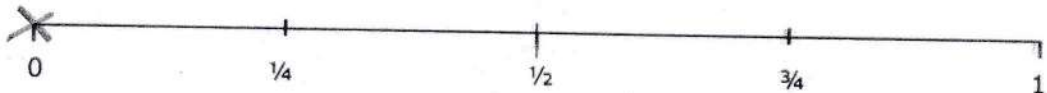
The tin contains 8 custard creams, 4 digestives and 4 rich teas.

Bertha is going to pick a biscuit at random.

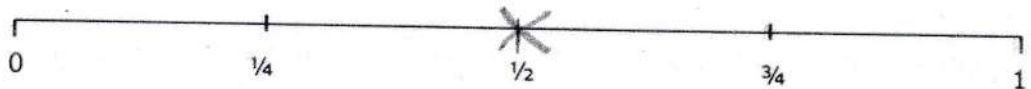
(a) Mark on the probability scale below the probability that she picks a digestive biscuit.



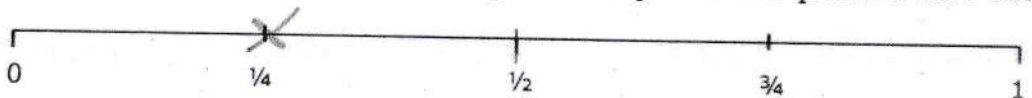
(b) Mark on the probability scale below the probability that she picks a shortbread biscuit.



(c) Mark on the probability scale below the probability that she picks a custard cream biscuit.

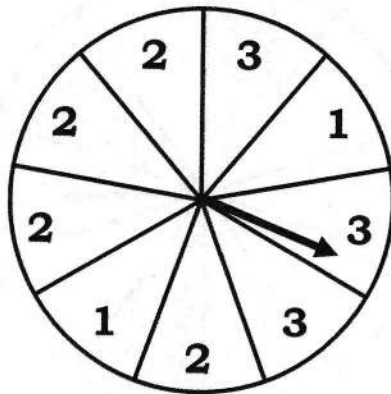


(d) Mark on the probability scale below the probability that she picks a rich tea biscuit.



5.

Beatrice is going to spin a fair nine-sided spinner.  
The spinner is pictured below.



(a) What is the probability that Beatrice spins a 1?

$$\frac{2}{9}$$

(b) What is the probability that Beatrice spins a 2?

$$\frac{4}{9}$$

(c) What is the probability that Beatrice spins an odd number?

$$\frac{5}{9}$$

(d) What is the probability that Beatrice spins a 4?

$$0$$

6.

David has a bag of marbles.

It contains 6 green marbles, 9 black marbles and 5 white marbles.

David is going to pick a marble at random.

(a) What is the probability that David picks a black marble?

$$\frac{9}{20}$$

(b) What is the probability that David picks a green marble?

$$\frac{6}{20} = \frac{3}{10}$$

(c) What is the probability that David picks a pink marble?

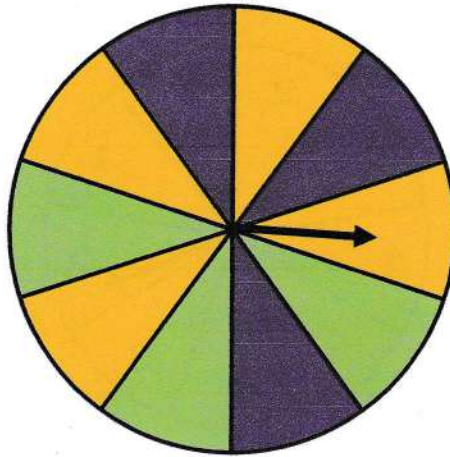
$$0$$

(d) What is the probability that David picks a marble that is not white?

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

7.

Zac is going to spin a fair ten-sided spinner.  
The spinner is pictured below.



(a) What is the probability that Zac lands on purple?

$$\frac{3}{10}$$

(b) What is the probability that Zac lands on red?

$$0$$

(c) What is the probability that Zac lands on green or orange?

$$\frac{7}{10}$$

(d) What is the probability that Zac lands on purple or green?

$$\frac{6}{10} = \left(\frac{3}{5}\right)$$

8.

Jack has a deck of cards.

The pack contains 10 clubs, 8 spades, 12 hearts and 7 diamonds.

Jack is going to pick a card at random from the deck.

(a) What is the probability that Jack picks a diamond?

$$\frac{7}{37}$$

(b) What is the probability that Jack does not pick a club?

$$\frac{27}{37}$$

(c) What is the probability that Jack picks a spade or a heart?

$$\frac{20}{37}$$

(d) What is the probability that Jack picks a diamond or a club?

$$\frac{17}{37}$$



9.

The probability that a bus is late is 0.24.

What is the probability that the bus is on time?

$$1 - 0.24 = \underline{0.76}$$

10.

The probability of a biased coin landing on heads is  $\frac{5}{9}$ .

What is the probability that the coin lands on tails?

$$1 - \frac{5}{9} = \left(\frac{4}{9}\right)$$

11.

The probability of a machine breaking today is  $\frac{7}{100}$ .

What is the probability that the machine does not break today?

$$1 - \frac{7}{100} = \left(\frac{93}{100}\right)$$

12.

The probability of a football team winning a match is 0.48.

The probability of a football team drawing a match is 0.3.

What is the probability that the football team loses the match?

$$0.48 + 0.3 = 0.78$$
$$1 - 0.78 = \underline{0.22}$$

13.

Kieran is going to buy a hoodie, a jumper or a blazer.

The probability of Kieran buying a hoodie is 0.52.

The probability of Kieran buying a blazer is 0.2.

What is the probability that Kieran buys a jumper?

$$0.52 + 0.2 = 0.72$$
$$1 - 0.72 = \underline{0.28}$$

14.

A spinner has four sections – green, blue, red and yellow.

The incomplete table below shows the probabilities of landing on each section.

Colour	Green	Blue	Red	Yellow
Probability	0.33	0.28	0.2	0.19

What is the probability that the spinner lands on blue?

$$\begin{array}{r} 0.33 \\ + 0.20 \\ + 0.19 \\ \hline 0.72 \end{array}$$

$$1 - 0.72 = \underline{0.28}$$

15.

Leanne has a deck of cards.

The incomplete table below shows the probability of picking each suit.

Suit	Club	Spade	Heart	Diamond
Probability	0.31	0.15	0.24	0.3

What is probability that Leanne picks a club or a spade?

$$\begin{array}{r} 0.31 \\ + 0.24 \\ + 0.30 \\ \hline 0.85 \end{array}$$

$$1 - 0.85 = \underline{0.15}$$

16.

Maureen has a box of chocolates.

The incomplete table below shows the probability of picking each flavour.

Flavour	Plain	Caramel	Coconut	Orange	White
Probability	0.4	0.19	0.09	0.16	0.16

The probability of picking an orange chocolate is the same as picking a white chocolate.

What is the probability of picking a white chocolate?

$$\begin{array}{r} 0.40 \\ + 0.19 \\ + 0.09 \\ \hline 0.68 \end{array}$$

$$1 - 0.68 = 0.32$$

$$0.32 \div 2 = \underline{0.16}$$

17.

James has a biased six-sided dice.

The incomplete table below shows the probabilities of rolling each number.

Number	1	2	3	4	5	6
Probability	0.17	0.11	0.24	0.25	0.12	0.11

The probability of rolling a 6 is the same as rolling a 2.

What is the probability of rolling a number less than 3?

$$\begin{array}{r} 0.17 \\ 0.24 \\ 0.25 \\ + 0.12 \\ \hline 0.78 \end{array}$$

$$1 - 0.78 = 0.22$$

$$0.22 \div 2 = 0.11$$

$$\text{Less than 3} = 0.17 + 0.11 = \underline{0.28}$$

18.

George has a fair coin.

He is going to spin the coin 20 times.

How many times would you expect George to land on heads?

$$\frac{1}{2} \times 20 = \underline{10}$$

19.

The probability that Imogen wins on a fruit machine is  $\frac{3}{8}$ .

She is going to play 40 games on the fruit machine.

How many games would you expect Imogen to win?

$$\frac{3}{8} \times 40 = \underline{15}$$

20.

The probability that Jeremy scores a goal in a football match is  $\frac{2}{9}$ .

He has 36 matches left to play this season.

How many of these matches would you expect Jeremy to score in?

$$\frac{2}{9} \times 36 = \underline{8}$$

21.

Herbert has 80 hens.

The probability of each hen laying an egg tomorrow is 0.1.

How many eggs do you expect Herbert's hens to lay tomorrow?

$$80 \times 0.1 = \underline{8}$$

22.

Freya has a fair six-sided dice.  
She is going to roll the dice 30 times.

(a) How many times would you expect Freya to roll a 6?

$$\frac{1}{6} \times 30 = \underline{5}$$

(b) How many times would you expect Freya to roll an odd number?

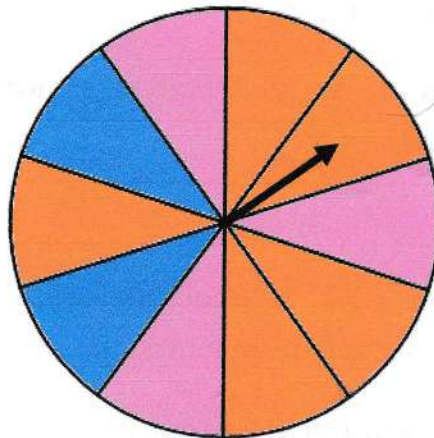
$$\frac{1}{2} \times 30 = \underline{15}$$

(c) How many times would you expect Freya to roll a number larger than 3?

$$\frac{1}{2} \times 30 = \underline{15}$$

23.

Below is a fair spinner.



Ed is going to spin the spinner.

(a) Circle the word that best describes the probability of landing on pink.

Impossible

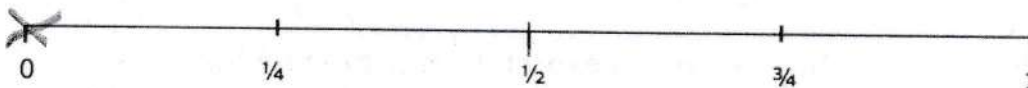
Unlikely

Evans

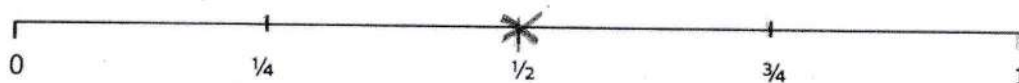
Likely

Certain

(b) Mark on the probability scale below the probability of landing on yellow.



(c) Mark on the probability scale below the probability of landing on orange.



(d) If Ed spins the spinner 50 times, how many times would you expect him to land on blue?

$$\frac{2}{10} \times 50 = \underline{10}$$



24.

Henrietta has a bag of counters.

The bag contains 10 yellow counters, 8 red counters and 6 blue counters.

(a) Circle the word that best describes the probability of picking a white counter.

Impossible

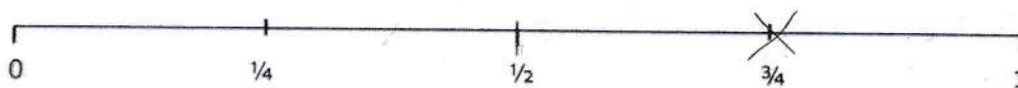
Unlikely

Evens

Likely

Certain

(b) Mark on the probability scale the probability of picking a counter that is not blue.



(c) What is the probability of picking a yellow counter?

$$\frac{10}{24} = \frac{5}{12}$$

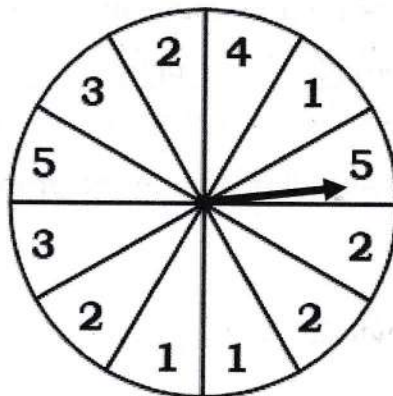
(d) Henrietta is going to pick a counter and then put it back into the bag.

If she does this 60 times, how many times would you expect her to pick a red counter?

$$\frac{8}{24} \times 60 = \underline{20}$$

25.

Below is a fair spinner.



(a) What is the probability of landing on a whole number?

(b) What is the probability of landing on an even number?

$$\frac{5}{12}$$

(c) If the spinner is spun 100 times, how many times would you expect it to land on 1?

$$\frac{3}{12} \times 100 = \underline{25}$$

(d) If the spinner is spun 120 times, how many times would you expect it to land on an odd number?

$$\frac{7}{12} \times 120 = \underline{70}$$

26.

Sylvia has a biased spinner.

The incomplete table below shows the probabilities of landing on each section.

<b>Colour</b>	Blue	Red	Green	Orange	Purple
<b>Probability</b>	0.35	0.2	0.17	0.14	0.14

The probability of landing on orange is the same as landing on purple.

(a) What is the probability of landing on green or orange?

$$\begin{array}{r} 0.35 \\ 0.20 \\ + 0.17 \\ \hline 0.72 \\ \hline 1 \end{array}$$

$$1 - 0.72 = 0.28$$

$$0.17 + 0.14 = \underline{0.31}$$

$$0.28 \div 2 = 0.14$$

(b) If Sylvia spins the spinner 50 times, how many times would you expect her to land on purple?

$$0.14 \times 50 = \underline{7}$$

27.

At a school, boys can play one of four sports – football, rugby, cricket and tennis.

The incomplete table below shows the probabilities of a boy picking each sport.

<b>Sport</b>	Football	Rugby	Cricket	Tennis
<b>Probability</b>	0.36	0.21	0.25	0.18

The probability of a boy picking football is double the probability of picking tennis.

(a) Complete the table.

$$\begin{array}{r} 0.21 \\ + 0.25 \\ \hline 0.46 \end{array}$$

$$1 - 0.46 = 0.54$$

$$\text{Football} = 0.18 \times 2 = 0.36$$

$$0.54 \div 3 = 0.18$$

$$\text{Tennis} = 0.18$$

At the school, girls can play one of four sports – netball, rounders, football and tennis. The table below shows the probabilities of a girl picking each sport.

<b>Sport</b>	Netball	Rounders	Football	Tennis
<b>Probability</b>	0.39	0.13	0.28	0.2

(b) At the school, there are 300 boys and 350 girls. How many students at the school play tennis?

$$\text{Boys: } 300 \times 0.18 = 54$$

$$\text{Girls: } 350 \times 0.2 = 70$$

$$54 + 70 = \underline{124}$$