

**Non-calculator Questions**

NCFE

1.

Zak wants to find out how accurate the weather forecast is.

This table shows the last 6 months' forecasts for rain.

It also shows the number of days that it actually rained or stayed dry.

		Actual weather (days)	
		Rain	Dry
Forecast weather (days)	Rain	70	60
	Dry	36	16

Was the forecast more likely to be right when it was for rain or when it was for dry weather?

Explain how you decide.

**[3 marks]**

Your answer:

2.

The probability that Hannah makes a profit when she sells any item at an online auction is 0.8

What is the probability that **neither** of the next two items she sells at an online auction makes a profit?

**[2 marks]**

Your answer:	

City & Guilds

3.

The probability that a salesperson will get an order from a visit to a customer is  $\frac{1}{4}$   
She has 2 visits tomorrow.

What is the probability that she will get orders from **both** visits tomorrow?  
Give your answer as a fraction in its simplest form.


**(1 mark)**

4.

A call centre aims to deal with calls in less than 5 minutes.

Calls come in randomly.

The table shows data for the calls made to the centre.

Type of call	Proportion of all calls	Completed in less than 5 minutes
Customer complaints	$\frac{1}{4}$	$\frac{1}{2}$
New business	$\frac{3}{4}$	$\frac{1}{8}$

Work out the probability that the next call will be a customer complaint completed within under 5 minutes.

Give your answer as a fraction in its simplest form.

$$\frac{\square}{\square}$$

(1 mark)

5.

A commuter uses a bus and a train to get to work.

The train is more than 5 minutes late  $\frac{1}{6}$  of the times they use it

The bus is more than 5 minutes late  $\frac{3}{5}$  of the times they use it

What is the probability that **both** the bus and train will be more than 5 minutes late?

Show your working

(2 marks)

Highfield

6.

When Highfield Transport gets busy it offers overtime to a driver.

There are 5 drivers at Highfield Transport. The probability of there being overtime available in any given week is  $\frac{1}{4}$ .

The driver allocated overtime is chosen at random.

**What is the probability of you being allocated overtime next week? Give your answer as a fraction AND a percentage.**

Show your working out and write the answer in the box below.

*(3 marks)*

Answers: \_\_\_\_\_

7.

Your friend, Joanne, volunteers at the kennels.

There are 12 volunteers in total. Only 8 volunteers are needed per day and they are chosen at random.

The kennels are split into small dogs and large dogs. There are 25 small dogs and 11 large dogs.

Volunteers who are working are allocated a dog at random to walk.

**On any given day, what is the probability of your friend Joanne working and being allocated a large dog?**

**Give your answer as a fraction.**

Show your working out and write the answer in the box below.

*(2 marks)*

Answer: \_\_\_\_\_

8.

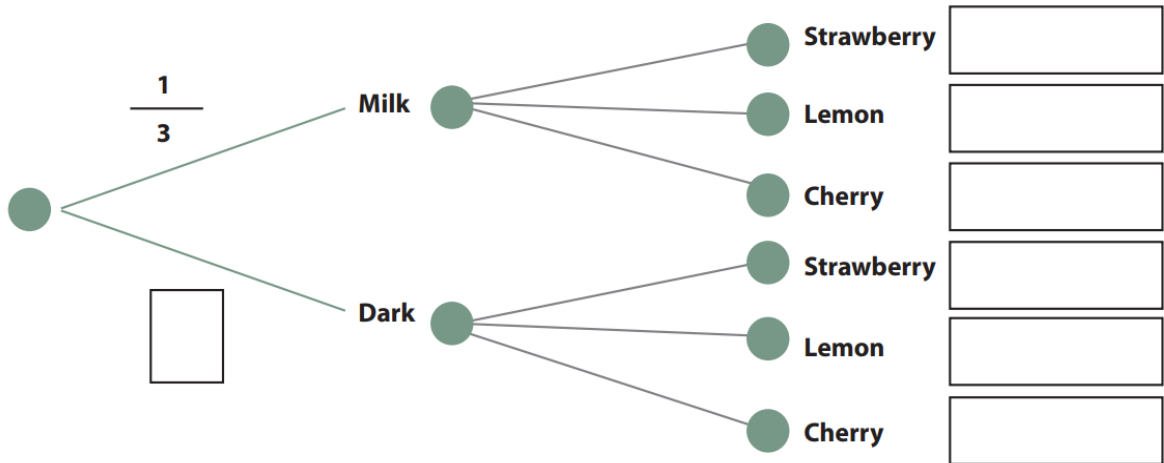
A box contains sweets that are either covered with dark chocolate or milk chocolate.

There are twice as many sweets covered in dark chocolate than there are covered in milk chocolate.

The sweets have different flavoured centres; strawberry, lemon and cherry.

There are an equal number of each flavour.

This diagram shows options of picking each chocolate and the flavour.



Complete the diagram with the probability of each branch.

Use the diagram to find the probability of picking a strawberry flavour sweet with milk chocolate.

Show your working out and write the answer in the box below.

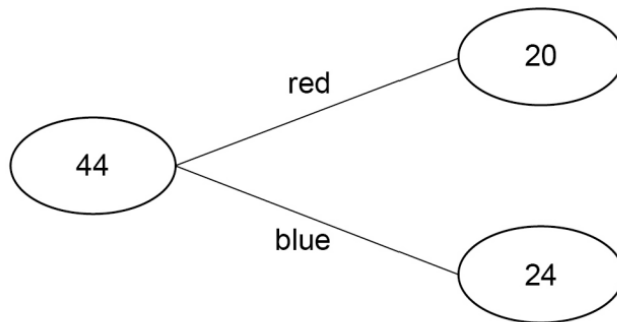
(4 marks)

Answer: \_\_\_\_\_

AQA

9.

The frequency tree shows information about the colour of 44 items.  
One of the items is chosen at random.



Work out the probability that the item is **blue**.

Give your answer as a fraction in its simplest form.

**[2 marks]**

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Answer \_\_\_\_\_

**Calculator Questions**

Edexcel

1.

Dan throws two fair dice.

The numbers on dice A are            1   -2   3   -4   5   -6

The numbers on dice B are           -1   2   -3   4   -5   6

The table shows some total scores from throwing the two dice.

		<b>Dice A</b>					
		<b>1</b>	<b>-2</b>	<b>3</b>	<b>-4</b>	<b>5</b>	<b>-6</b>
<b>Dice B</b>	<b>-1</b>	0	-3	2	-5		-7
	<b>2</b>	3		5	-2	7	
	<b>-3</b>	-2	-5		-7		
	<b>4</b>	5	2		0		
	<b>-5</b>	-4		-2		0	-11
	<b>6</b>			9	2		0

(a) Complete the table. (1)

Dan throws the two dice once.

(b) What is the probability that the total score is -11? (1)

Dan throws the two dice again.

(c) What is the probability that the new total score is 0? (1)



2.

Mai has this information about 100 flowering plants in her shop.

		Stem length	
		Short	Long
Size of flower	Small	10	18
	Large	43	29

She will take a plant at random from these plants.

- (a) Work out the probability that this plant will have a large flower and a long stem.

(2)

Mai will take at random a plant from the 72 plants that have a large flower.

- (b) Work out the probability that this plant will have a short stem.

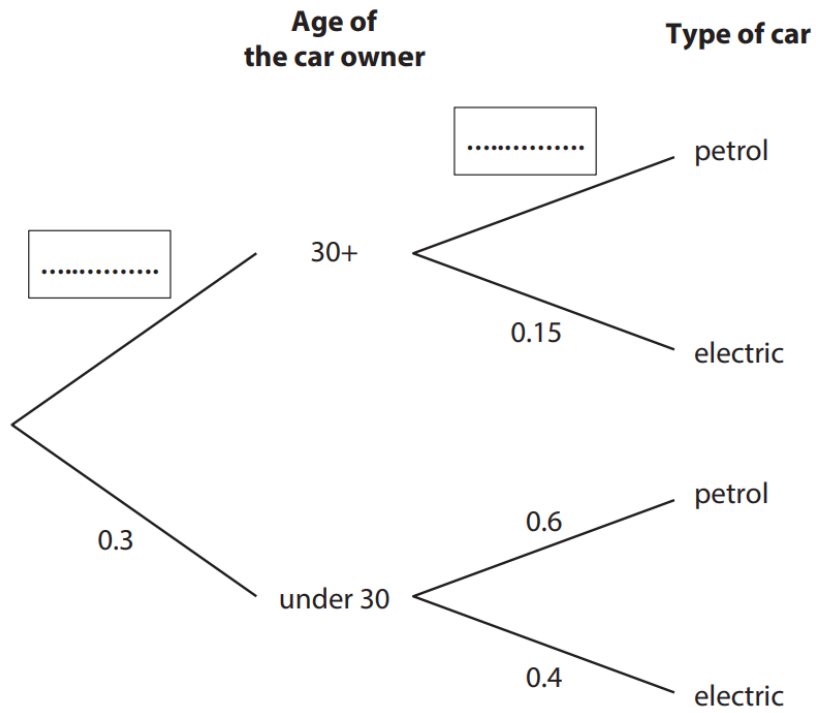
(1)

3.

The tree diagram shows the probability of selecting a car owner by their age and the type of car they have.

(a) Complete the probability tree.

(2)



A person is chosen at random.

(b) Work out the probability that this person is under 30 and has an electric car.

(2)

NCFE

4.

There are 10 volunteers in the community archaeology group.

The probability that they all attend on a Saturday is 0.35

The probability that they all attend on a Sunday is 0.12

The site is open next weekend.

Calculate the probability that all the volunteers will attend on both Saturday and Sunday next weekend.

Give your answer as a percentage.

**[2 marks]**

Your answer:	%

5.

There are 15 players in Lottie's basketball team.

The table shows information about the players:

		Height (m)		
		under 1.65 m	1.65 to 1.8 m	over 1.80 m
Usual position on court	Centre	0	2	2
	Forward	0	5	3
	Guard	2	1	0

The coach chooses a forward at random to take a shot.

What is the probability that the player chosen is over 1.8 m tall?

Give your answer as a fraction **and** as a decimal.

**[2 marks]**

Your answer:

**Fraction:**

**Decimal:**

6.

Liam downloads films from the internet.

The table shows the number of films he downloaded last month.

	Action	Comedy	Sci-Fi	Total
Less than 1 hour long	5	2	4	11
Exactly 1 hour long	2	4	6	12
More than 1 hour long	1	1	3	5
Total	8	7	13	28

He chooses one of these films at random.

What is the probability that the film he chooses is an action film that is at least 1 hour long?

**[2 marks]**

Your answer:

7.

Pete asks a group of college students which machine's juice they prefer.

This table shows their responses:

Age group	SuperJuicer	Blitz-It juicer
Under 19 years old	16	4
19+ years old	17	13

A student from the group is chosen at random.

What is the probability that the student is under 19 and preferred juice from Blitz-It juicer?

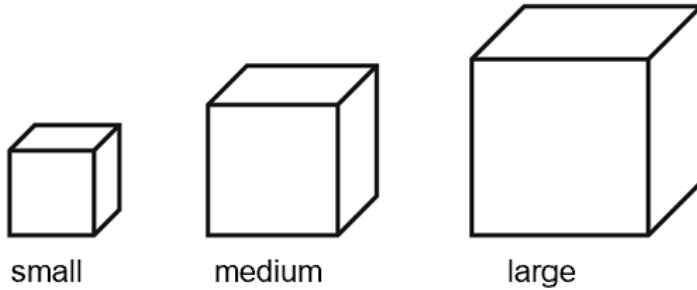
**[2 marks]**

Your answer:

8.

Noah has two bags of blocks.

Each bag contains the same number of small, medium and large blocks.



Noah picks one block from each bag at random.

The table below shows the possible outcomes, which are all equally likely:

		1 <sup>st</sup> bag		
		Small (S)	Medium (M)	Large (L)
2 <sup>nd</sup> bag	Small (S)	SS	MS	LS
	Medium (M)	SM	MM	LM
	Large (L)	SL	ML	LL

What is the probability that Noah picks two small blocks?

**[1 mark]**

Your answer:

9.

Mel has information about applicants accepted on two new courses:

	Course A	Course B
Male applicant	22	71
Female applicant	59	48

What is the probability one of these applicants chosen at random is female and accepted on Course B?

Give your answer as a percentage.

**[2 marks]**

Your answer:	%
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10.

Chris works for an estate agents.

He is a sales negotiator.

Chris has this data about the number of flats and houses sold by each sales negotiator last year:

Sales negotiator	Adam	Belle	Chris	Daika	Eva	Fiona	Gai	Harry
Flats sold	2	5	3	2	3	4	5	1
Houses sold	3	1	4	0	3	2	0	3

Work out the probability that a sales negotiator chosen at random sold more flats than houses last year.

Give your answer as a percentage.

**[2 marks]**

Your answer:

%

Highfield

11.

This table shows the number of customers who use contactless payments.

**a) Complete the table.**

*(2 marks)*

	Use contactless payments	Do not use contactless payments	Total
Aged 30 years and under	951	446	1397
Aged over 30 years	337		
<b>Total</b>	<b>1288</b>		<b>1854</b>

b) A customer aged over 30 years was chosen at random.

**What is the probability that the chosen customer uses contactless payments?**

**Give your answer as a percentage.**

Show your working out and write the answer in the box below.

*(3 marks)*

Answer: \_\_\_\_\_%

Open Awards

12.

At the charity event there is a Wheel of Fortune game for the boys and girls.

To win you need to spin the dial and land on a 'win' segment.

**Wheel of Fortune**



15 girls and 15 boys are each having a turn on the game today.

What is the probability today that a child who plays is a girl, **and** that she wins a prize?  
(3 marks)

Show your calculations and/or workings out here:

Write your answer in this box.

AQA

13.

In the next quiz there are two multiple choice questions.

Each question has 3 options to choose from.

Stefan does not know the answers to the questions.

He chooses at random an answer to each question.

What is the probability that both his answers are correct?

**[2 marks]**

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Answer \_\_\_\_\_

14.a)

Some of the posts were about clothing and the rest were about shoes.

The table shows the number of each.

	Company A	Company B
Clothing	21	13
Shoes	9	10

One of the posts is chosen at random.

Work out the probability that it is about clothing.

**[1 mark]**

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Answer \_\_\_\_\_

b)

Work out the probability that it is from Company A **and** is about shoes.

[1 mark]

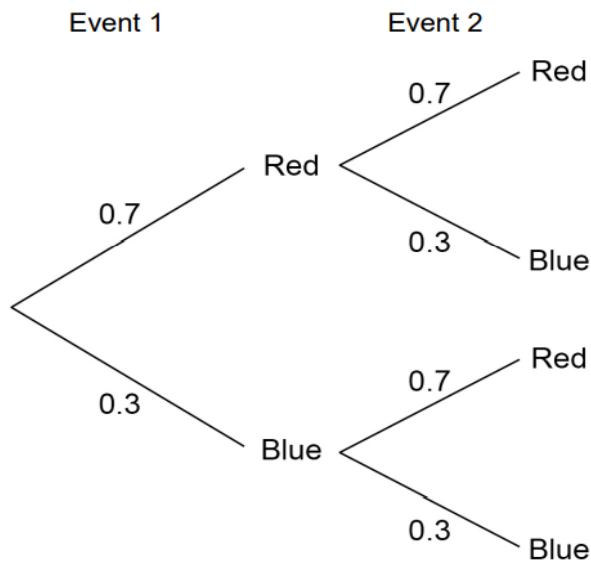
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Answer \_\_\_\_\_

15.

Here is a tree diagram.



Work out the probability of Red in Event 1 **and** Red in Event 2

[2 marks]

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Answer \_\_\_\_\_