1st Class Maths

Video Solutions

SCAN ME

PRACTICE PAPER FOR

AQA Paper 2F (June 2023)

---------- Disclaimer ----------

In 2022 I wrote a series of predicted papers that in many cases reflected the real exam paper very well. This was due to the exam boards providing advance information on the topics that were going to be in each paper. This information is no longer provided so “predicting” a paper is not possible. Nobody can know what topics and types of questions will come up in each paper, apart from the few examiners that write them.

This paper has been created based on the **most common** paper 2/3 topics from previous years and also careful analysis of what topics have already appeared in paper 1. The paper should be excellent at helping students revise for exams, however should not be relied upon as the basis for revision. The topics from this paper may well appear in the real exams, however there is absolutely no guarantee of this for the reasons previously mentioned. Some topics may appear, some may not.

Ultimately the best way to prepare for the exams is to **revise all topics**.

Do not write outside the box

Answer **all** questions in the spaces provided.

1 (a) Simplify $p + p + p + p$ **[1 mark]**

Answer _____

1 (b) Simplify $c \times c \times c$ **[1 mark]**

Answer _____

2 (a) Convert 2 metres into centimetres. **[1 mark]**

Answer _____ cm

2 (b) Convert 400 grams into kilograms. **[1 mark]**

Answer _____ kg

Do not write outside the box

3 Here is a number line.

Write down the number marked by the arrow. **[1 mark]**

Answer _____

4 Here are some numbers

10 8 4 6 4 10 10

4 (a) Write down the **mode** of the numbers. **[1 mark]**

_____

_____

Answer _____

4 (b) Work out the **median** of the numbers. **[2 marks]**

_____

_____

Answer _____

8

Do not write outside the box

5 Natalie is attending a maths revision day.
She can choose to attend one Number session, one Algebra session and one Geometry session.

Number	Algebra	Geometry
Fractions (F) Negative Numbers (N)	Equations (E) Substitution (S)	Trigonometry (T) Circles (C)

5 (a) List all the possible combinations of sessions Natalie could attend. **[2 marks]**
The first has been done for you.

(FET),

5 (b) What **fraction** of the possible combinations have Equations **and** Circles? **[1 mark]**

Answer _____

Do not write outside the box

6 b and c are two different integers.
b is greater than c.

6 (a) Write down an expression for the sum of b and c. **[1 mark]**

Answer _____

6 (b) Write down an expression for the range of b and c. **[1 mark]**

Answer _____

7 Solve $5x + 3 = 32$ **[2 marks]**

_____

_____

_____

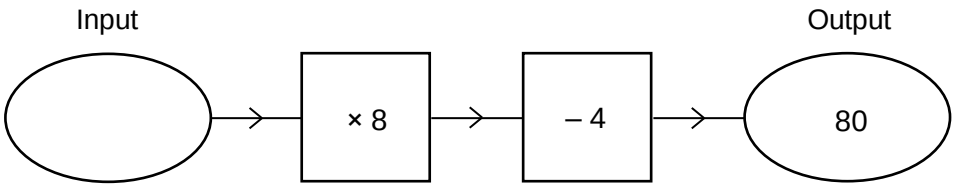
_____

$x =$ _____

7

Do not write outside the box

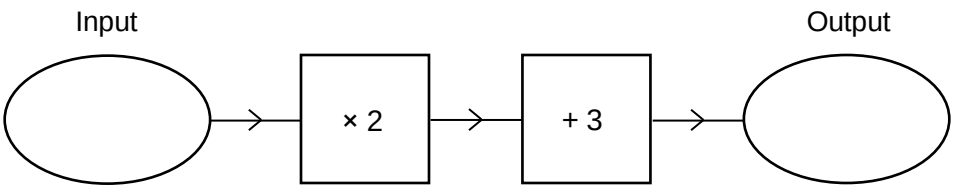
8 (a) Here is a number machine.



Work out the input. **[2 marks]**

Answer _____

8 (b) Here is a different number machine.



Sian inputs a positive whole number.
Tick the correct statement. **[1 mark]**

The output will always be even ☐

The output will always be odd ☐

The output could be odd or even ☐

Do not write outside the box

9 Sharon is investigating the whole numbers from 1 to 10.

She creates the two-way table shown below.

	Prime	**Not Prime**
Even	2	4, 6, 8, 10
Odd	3, 5, 7, 9	1

9 (a) Write down the number that Sharon has placed **incorrectly.** **[1 mark]**

Answer _____

9 (b) Sharon randomly selected a number from the table. **[1 mark]**
Write down the probability the number is an **even prime** number.

Answer _____

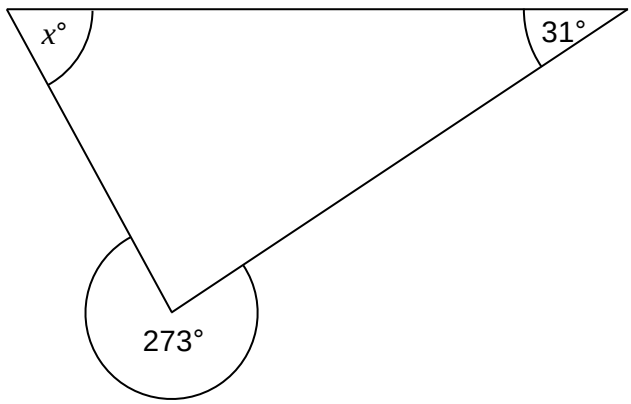
9 (c) Using only the whole numbers from **1 to 10**, complete the table below. **[3 marks]**

	Factors of 10	**Not a factor of 10**
Factors of 15		
Not a factor of 15		

8

Do not write outside the box

10



Work out the value of x **[3 marks]**

$x =$ _____ °

Do not write outside the box

11 Here are the prices of coffee at 4 different shops.

Shop	Price
A	£1.85
B	£1.95
C	£2.35
D	90p

11 (a) Work out the range of the prices. **[2 marks]**

Answer £ _____

11 (b) Write as a ratio, the price at shop B to the price at shop D.
Give your answer in its simplest form. **[2 marks]**

Answer _____ : _____

7

Turn over ►

Do not write outside the box

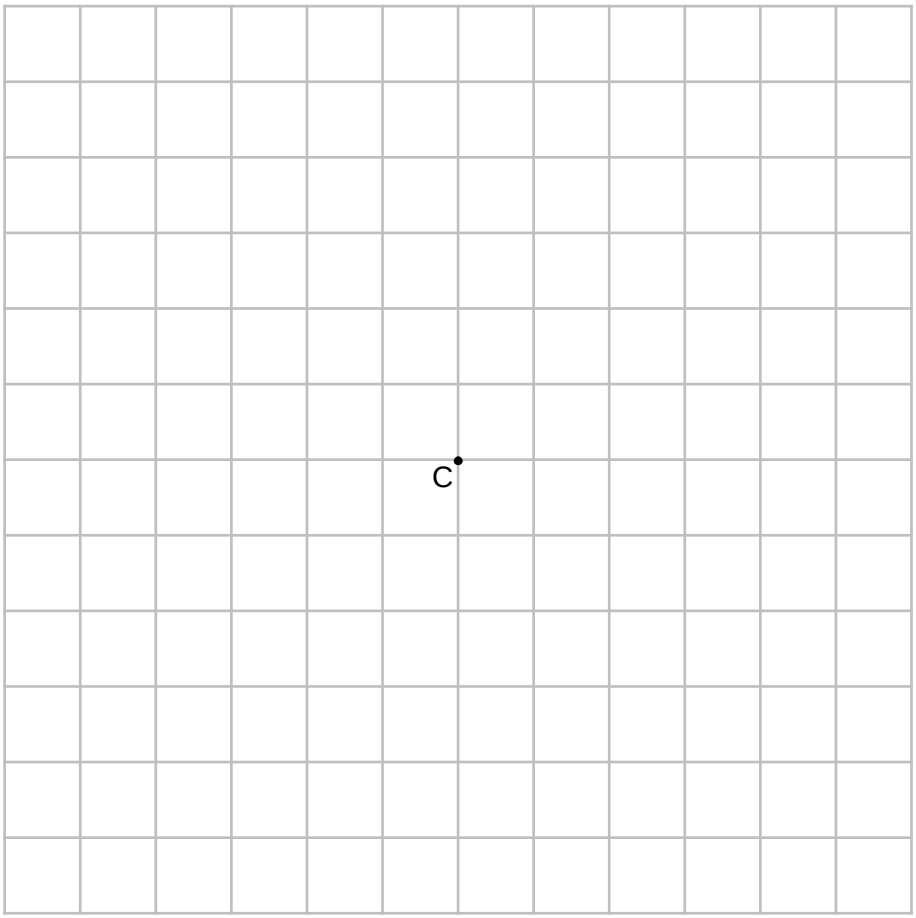
12 Paulo draws a circle onto the centimetre square grid below.

The circle he draws

has a centre at the point C.
has a radius that is a whole number when measured in centimetres.
has an area between 20 cm^2 and 60 cm^2

12 (a) Draw a circle onto the centimetre grid below that Paulo could have drawn.

[2 marks]



12 (b) Work out the area of the circle that you have drawn.
Give your answer to 1 decimal place.

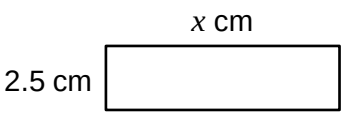
[2 marks]

Answer _____ cm^2

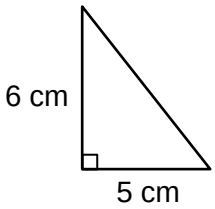
Do not write outside the box

13 Here are some shapes

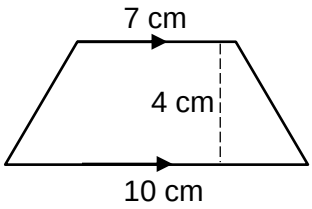
Shape A



Shape B



Shape C



Area of **Shape A** + Area of **Shape B** = Area of **Shape C**

Work out the value of x. **[5 marks]**

$x =$ _____

9

Do not write outside the box

14 Andrew and his two daughters are season ticket holders at a football club.
Here are the prices for season tickets during the current season.

Ticket	Price
Adult	£375
Child	£190

Next season the prices are going to change.

The Adult ticket price will increase by 8%
The Child ticket price will decrease by 15%

Work out how much Andrew will need to pay in total next season for **[4 marks]**

1 Adult season ticket

and

2 Child season tickets

Answer £ _____

Do not write outside the box

15 Miriam plays football and hockey at the weekend.

time spent playing football : time spent playing hockey = 5 : 7

In total Miriam spends 3 hours playing football and hockey at the weekend.

Work out how many minutes Miriam spends playing hockey. **[3 marks]**

Answer _____ minutes

16 Work out the highest common factor (HCF) of 56 and 70 **[2 marks]**

Answer _____

9

Do not write outside the box

17 Mary needs to buy 20 lollies.

The prices in the supermarket are shown below.

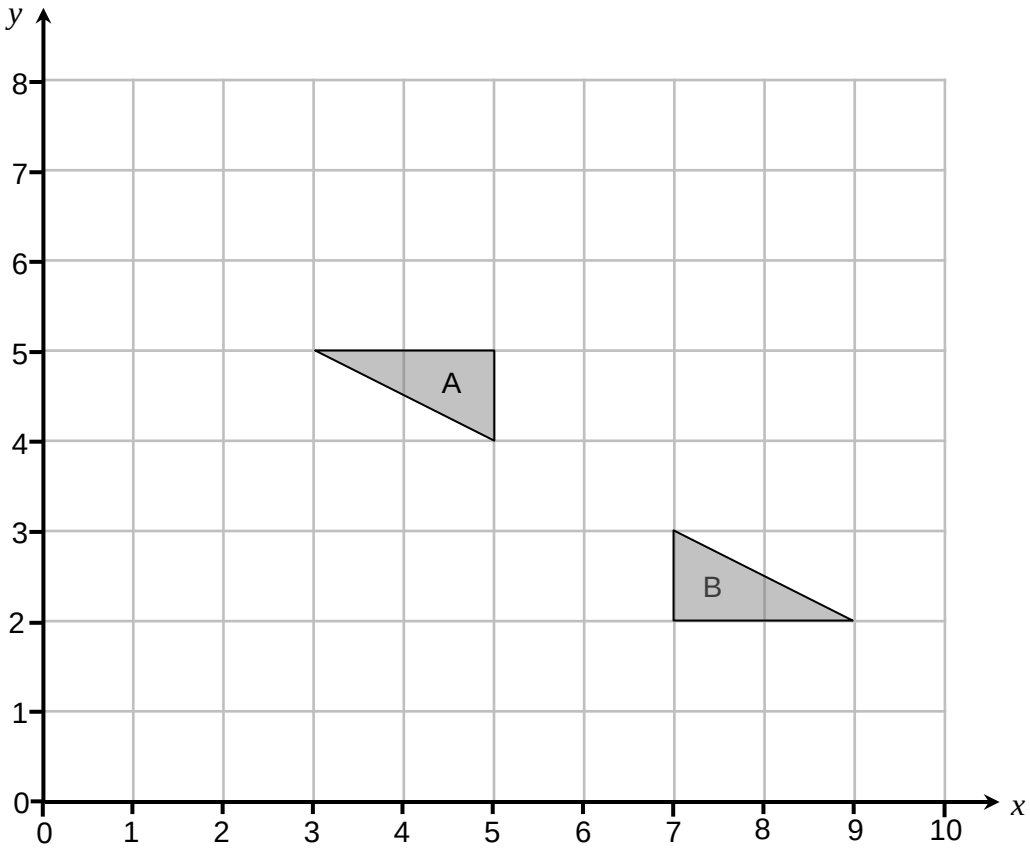
Single lolly	16p
Pack of 4 lollies	£0.85
Pack of 12 lollies	£1.74

Work out the cheapest price for 20 lollies. **[4 marks]**

Answer £ _____

Do not write outside the box

18



18 (a) Describe fully the single transformation that maps Triangle A onto Triangle B.

[3 marks]

18 (b) Translate triangle A by the vector $\begin{pmatrix} 0 \\ 2 \end{pmatrix}$

Label your new triangle C.

[2 marks]

9

Do not write outside the box

19 The capacity of a small drinking cup is 330 ml (to the nearest 10 ml)

19 (a) Complete the error interval for the capacity the small drinking cup. **[2 marks]**

Answer _____ ml ≤ capacity < _____ ml

19 (b) A larger cup has three times the capacity of the small cup.

Complete the error interval for the capacity the larger drinking cup. **[1 mark]**

Answer _____ ml ≤ capacity < _____ ml

20 The lengths of 16 songs on an album, in seconds, are shown below.

Time, *t* (seconds)	**Frequency**	**Midpoint**	
$0 \le t < 100$	1		
$100 \le t < 200$	8		
$200 \le t < 300$	7		

Work out an estimate for the mean length of the songs on the album. **[3 marks]**
Give your answer as a decimal.

Answer _____ seconds

Do not write outside the box

21 Gareth invests £5000 into a bank.

The bank gives 3.5% compound interest per year.
All interest is paid at the end of each year.

Gareth wants to withdraw the money once he has made over £1000 interest.

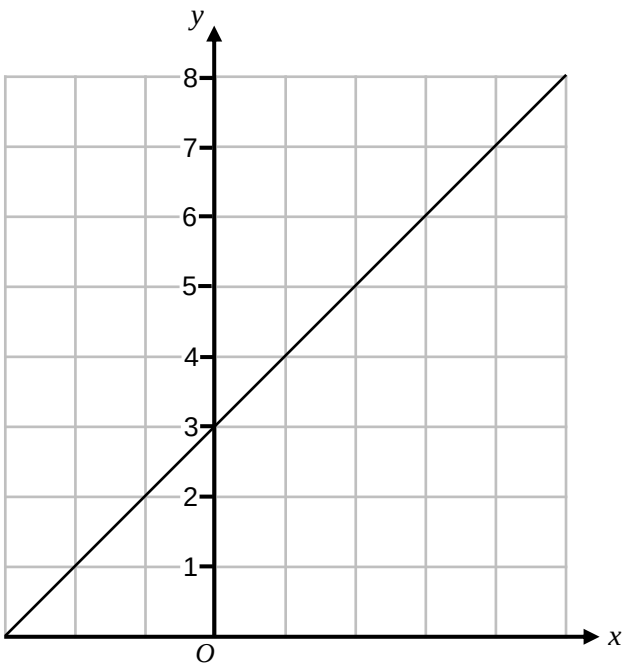
How many years will Gareth need to wait before withdrawing his money?
You must show all of your working. **[3 marks]**

Answer _____ years

9

Do not write outside the box

22 Veronika draws the straight line graph shown below.



Veronika forgets to label her x-axis.

For each of the following statements, tick the correct box. **[3 marks]**

	Must be true	Could be true	Cannot be true
The coordinates of the y-intercept are (0, 3)	☐	☐	☐
The gradient of the graph = -1	☐	☐	☐
The gradient of the graph = 2	☐	☐	☐

Do not write outside the box

23 Here are the first two terms of a sequence.

1 4

23 (a) Assume the sequence is an **arithmetic** sequence.

Work out the next two terms of the sequence. **[2 marks]**

Third Term = _____

Fourth Term = _____

23 (b) Assume instead that the sequence is a **geometric** sequence.

Work out the next two terms of the sequence. **[2 marks]**

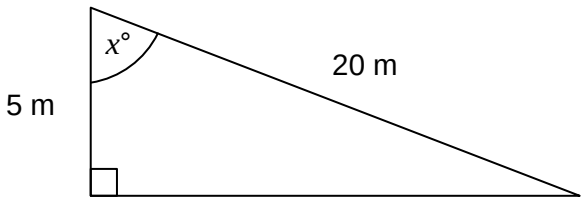
Third Term = _____

Fourth Term = _____

7

Do not write outside the box

24



Not drawn accurately

Use trigonometry to work out the value of x
Give your answer to 1 decimal place.

[2 marks]

$x =$ _____ °

25 Rearrange $p = 10 + ac$ to make c the subject.

[2 marks]

Answer _____

Do not write outside the box

26 Solve $x^2 + 13x + 22 = 0$ **[3 marks]**

Answer _____

7