Candidate surname	Other names

Maths Planner

AQA

June 2023 Predicted Paper

Mathematics
PAPER 2 (Calculator)
Foundation Tier

Time 1 hour 30 minutes

You must have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator, Formulae Sheet (enclosed). Tracing paper may be used.

Total Marks

____

80

Q	Topic(s)	Q	Topic(s)
1	Solving linear equations	13	Substitution
2	Rounding	14	Using a calculator / Rounding
3	Simplifying expressions	15	Arithmetic sequences
4	Percentage of amounts / unit conversion	16	Sharing ratio / Probability
5	Parts of a circle	17	Error intervals
6	Ratio in the form 1:n	18	Equation of a straight line
7	Time calculations	19	Best buys
8	HCF	20	Averages from grouped table
9	Bearings	21	Probability tables
10	Fractions of amounts / money	22	Applied area
11	Transformations	23	Identity / equation solving
12	Number reasoning	24	Geometric sequences

1   Solve the following equations to find x

    (a) $x - 12 = -20$ **[1 mark]**

          Answer _____

    (b) $4x - 3 = 11$ **[2 marks]**

          Answer _____

2   Round 7655 to the nearest 10   **[1 mark]**

          Answer _____

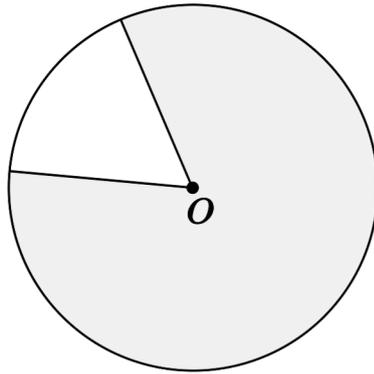**3**   Simplify $7x + 3y + 4x - y$ **[2 marks]**

          Answer _____

4   Find 35% of 480kg   **[3 marks]**

          Answer _____ g

5 Write down the word that describes the shaded area

Answer _____

6 If A:B = 3:15
Write A:B in the form **n:1** [1 mark]

_____

_____

Answer _____

7 Jamie leaves his house at 8 am.
It takes Jamie three-quarters of 5 hours to get to his destination.

(a) At what time should Jamie arrive at his destination? [3 marks]

_____

_____

_____

Answer _____

(b) Write down one assumption you have made in making your calculation. [1 mark]

_____

_____

8 (a) List all the factors of 36   **[1 mark]**
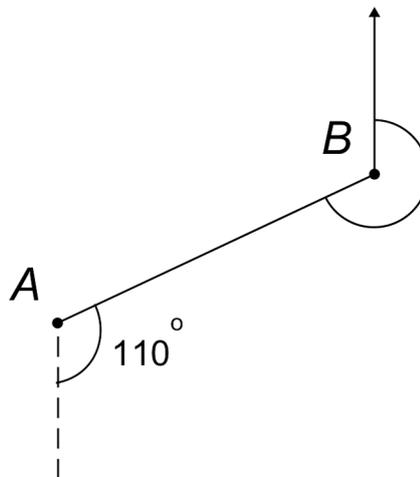
_____

   (b) List all the factors of 54   **[1 mark]**

_____

                                                                                      [1 mark]
   (c) Write down the HCF of 36 and 54

                Answer _____

9

   Calculate bearing A from B   **[2 marks]**

_____

_____

_____

                                                                              o
                          Answer _____

10 Tariq has 18 bottles of prime hydration.
Each bottle holds 500ml.
He sells $\frac{2}{3}$ of his bottles.

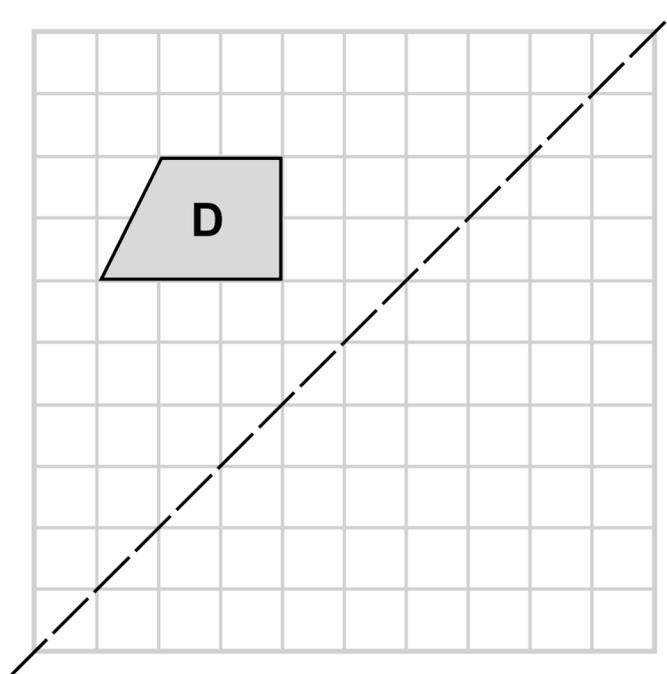**(a)** Work out how many litres of prime hydration Tariq kept for himself.   **[3 marks]**

_____

_____

_____

_____

_____

Answer _____ litres

(b) Tariq paid £2.99 per bottle and sold each bottle for £6.
Calculate how much profit tariq made.   **[2 marks]**

_____

_____

_____

_____

£ _____

11 **(a)** Reflect shape **D** in the mirror line. **[1 mark]**

(b) Write down the mathematical name for shape **D**. **[1 mark]**

_____

(c) Given shape **D** is enlarged by a scale factor of $3\frac{1}{2}$

Calculate the area of the enlarged shape. **[2 marks]**

_____

_____

_____

Answer _____

12 (a) Sarah is thinking of a number.
This number is a multiple of 7 and also a factor of 70.
Write down Sarah's number.

[1 marks]

Answer _____

(b) John has two numbers.
One of the numbers is a square number and the other is a prime number.
The square number is less than 50 and the prime number is more than 20.
List one possible pair of numbers that John might have.

[2 mark]

Answer _____

13 If $a = -2$, $b = -7$, and $c = 5$

Work out the value of $b^2 - 4ac$

[2 marks]

Answer _____

14 (a) Use your calculator to work out

$$\frac{\sqrt{sin(30)+2.01^4}}{(6.7-3.20)^{\frac{1}{2}}}$$

Write down all the figures shown on your calculator **[2 marks]**

Answer _____

(b) Round your answer to part **(a)** to 2 significant figures

[1 mark]

Answer _____

15 The first five terms of an arithmetic sequence are

1.4   0.6   -0.2   -1   -1.8

(a) Write down the next two terms of this sequence. **[1 mark]**

_____ , _____

(b) Write an expression in terms of n, for the nth term of this sequence.

[2 marks]

_____

_____

_____

Answer _____

16 Simone carried out a survey of **her year group** at school.
Simone's year group consists of 200 students.
Three-fifths of the year group answered the survey.

Favourite Console	Frequency
Switch	15
Playstation	
PC	27
Xbox	

(a) The ratio of students who prefer Xbox to those who prefer PlayStation is 8:5

Complete the table.

[3 marks]

(b) From the data collected.
A student was selected at random.
Work out the probability that they preferred an Xbox **or** Switch. **[2 marks]**

Answer _____

(c) Simone says

"From my survey, it shows that the most preferred console in my school is an Xbox"

Is Simone correct? **[1 mark]**

_____

_____

_____

(d) Write down **one** criticism of Simone's survey. **[1 mark]**

_____

_____

17 The length of a rectangle is measured as 7 cm, correct to the nearest cm.

(a) Write down the error interval for the length of the rectangle. **[2 marks]**
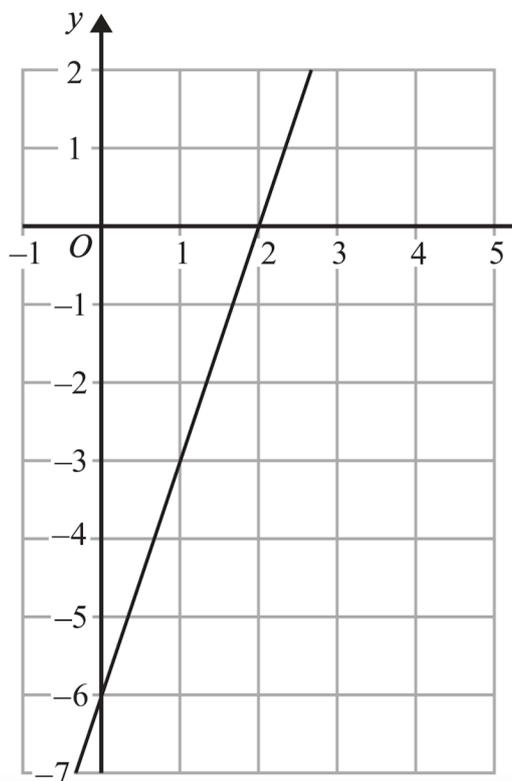
_____ $\leq$ _length_ $<$ _____

Given the exact width of the rectangle is 4cm.
Calculate the smallest possible area of the rectangle. **[2 marks]**

_____

_____

Answer _____ cm^2

18 The line **L** is shown on the grid

(a) Calculate the gradient of line **L** [2 marks]

Answer _____

(b) Write down the coordinates for the y-intercept. [1 mark]

Answer _____

(c) Write down the equation of line **L** in the form $y = mx + c$ [1 mark]

Answer _____

19 The supermarket has two brands of laundry detergent on sale.

Brand A	Brand B
1500ml for £3.80	2 litres for £5.50

Brand B has a special offer of 15% discount.

If a family typically uses 3 litres of laundry detergent per week,
How much could they save in a month by choosing the cheaper option?

[4 marks]

Answer _____

20 The table shows Mr Andrews year 10 GCSE Paper 1 mock results.

Score (*m* marks)	Frequency
$0 < m \leq 20$	8
$20 < m \leq 40$	15
$40 < m \leq 60$	8
$60 < m \leq 80$	4

(a) Write down the modal interval of scores. **[1 mark]**

Answer _____

(b) Work out an estimate for the mean number of marks Mr Andrews class achieved.
Give your answer to 1 d.p.

[3 mark]

_____

_____

_____

_____

Answer _____

21 A bag contains only red counters, blue counters, green counters and yellow counters. A counter is taken at random.

The table shows the probabilities of taking a counter from the bag.

Colour	red	blue	green	yellow
Probability	0.12			0.08

The probability of taking a blue counter is 4 times greater than the probability of taking a green counter.

There are 50 yellow counters.

(a) Work out the number of blue counters in the bag   **[3 marks]**
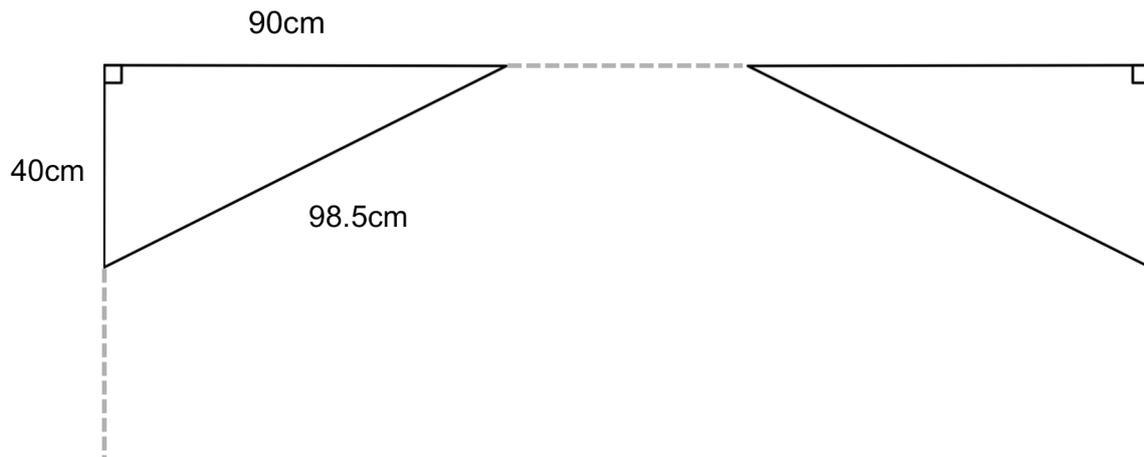
Answer _____

(b) Chloe takes a counter from the bag, notes its colour and then replaces it. She then selects a second counter.

Find the probability that Chloe takes two different colours.   **[3 marks]**

Answer _____

22 The diagram shows two congruent corner supports of a structure.

90cm

40cm

98.5cm

Each support needs two coats of spray paint.
A can of spray paint covers 1.5m^2
John has already used 45% of his last can.

Will he have enough spray paint left to paint both supports?
Show full workings to justify your answer.   **[4 mark]**

23 Here is an identity.

$$a(2x - y) \equiv 6x + by$$

Work out the values of *a* and *b*.   **[3 marks]**

_____

_____

_____

_____

_____

$a =$ _____ $b =$ _____

24 The first 5 terms of a geometric sequence are

25   15   9   5.4   3.24

A different geometric sequence has the same common ratio
Complete the missing terms of this sequence.   **[3 marks]**

150   ____   ____   ____   19.44

_____

_____

_____

_____

_____

_____