



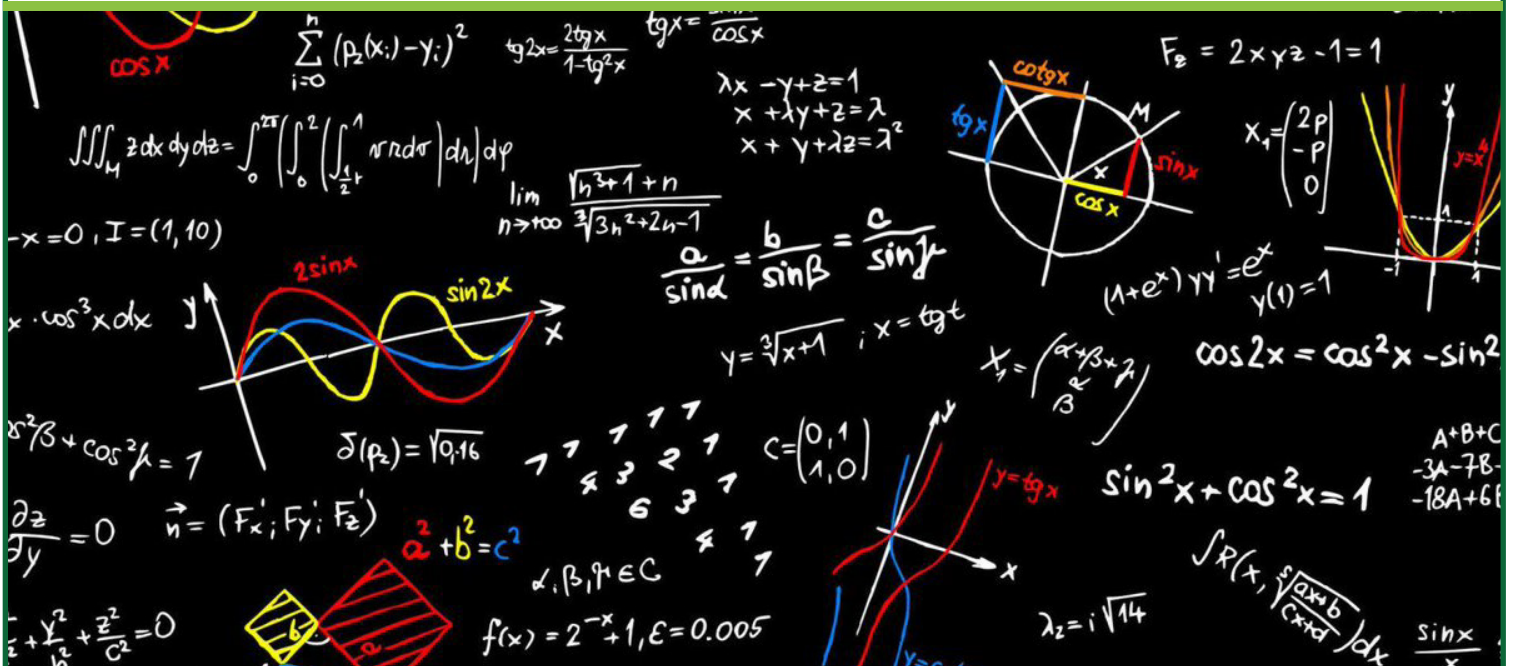
Bentley Wood

High School for Girls

Mathematics Bridging Work

Pack C

Year 10 into 11 for 2024/25



Name: _____

Tutor Group: _____

Teacher: _____



Year 10 Summer Revision Work

Pack C Foundation (sets 4 & 5)

This pack contains:

- **List of all foundation topics and Sparx video/task number (grades 1 to 5)**
- **A complete set of foundation practice papers, followed by the mark scheme.**

How to use this pack:

- 1- Identify the topics you need to revise first from the list (you do not need to do all of them)
- 2- Watch the video & try the task
- 3- Little and often – 2 to 3 videos and tasks per revision session
- 4- Complete the practice paper 1 odd questions
- 5- Mark and purple pen your answers
- 6- How did you do? Are there any topics you need to revisit? Mark them on the revision list and go to step 2
- 7- Complete practice paper 2 odd questions
- 8- Mark and purple pen your answers
- 9- How did you do? Are there any topics you need to revisit? Mark them on the revision list and go to step 2
- 10- Complete the practice paper 3 odd questions
- 11- Mark and purple pen your answers
- 12- Repeat the process for each of the 3 papers but this time you complete the even questions.
- 13- If you are in set 4 you must pay extra attention to the last 8 questions of each paper.

Number

Topic	Topic code	R	A	G
Ordering positive integers	U600			
Ordering decimals	U435			
Ordering negative numbers	U947			
Adding and subtracting positive integers	U417			
Multiplying and dividing positive integers	U127, U453			
Adding and subtracting negative numbers	U742			
Multiplying and dividing negative numbers	U548			
Adding and subtracting decimals	U478			
Multiplying and dividing with place value	U735			
Multiplying and dividing with decimals	U293, U868			
Order of operations	U976			
Prime numbers, prime factorisation	U236, U739			
Factors, multiples, HCF and LCM	U211, U751, U529			
Powers and roots	U851			
Using standard form	U330, U534			
Calculating with standard form	U264, U290, U161			
Equivalent fractions and simplifying fractions	U704, U646			
Mixed numbers and improper fractions	U692			
Ordering fractions	U746			
Addition and subtraction of fractions	U736, U793			
Multiplication and division of fractions	U475, U544			
Converting and ordering fractions, decimals and percentages	U888, U594			
Fractions of amounts	U881, U916			
Percentages of amounts	U554, U349			
Percentage change	U773, U671			
Reverse percentages	U286, U278			
Simple interest	U533			
Rounding	U480, U298			
Rounding to significant figures	U731, U965			
Estimating answers	U225			
Value for money	M681			

Algebra

Topic	Topic code	R	A	G
Algebraic expressions	U613			
Collecting like terms	U105			
Substitution	U201, U585, U144			
Expanding brackets	U179, U768			
Factorising expressions	U365			
Index laws	U235, U694, U662, U103			
Changing the subject	U556			
Coordinates	U789, U889			
Midpoints	U933			
Plotting straight line graphs	U741			
Equations of straight line graphs	U315, U669			
Parallel lines	U377			
Distance-time graphs	U403, U914, U462, U966			
Quadratic graphs	U989, U667			
Linear equations	U755, U325, U870, U505, U599			
Quadratic expressions and equations	U178, U228			
Linear sequences	U213, U530, U498, U978			
Other sequences	U958, U680			

Ratio and proportion

Topic	Topic code	R	A	G
Simplifying ratios	U687			
Sharing amounts in a ratio	U753, U577			
Converting between ratios, fractions and percentages	U176			
Direct proportion	U721, U640			
Inverse proportion	U357, U364			
Proportion graphs	U238			
Units of measure: Length, Mass and Capacity	U102, U388			
Units of measure: Time	U902			
Units of measure: Area	U248			
Currency conversion	U610			
Conversion graphs	U652, U638, U862			
Compound units: Speed	U151			

Geometry

Topic	Topic code	R	A	G
Properties of 2D shapes	U121, U849			
Properties of 3D shapes	U719			
Nets of 3D shapes	U761			
Angles: Measuring, Drawing and Estimating	U447			
Angle on a line and about a point	U390			
Vertically opposite angles	U730			
Angles on parallel lines	U826			
Angles in a triangle	U628			
Combining angle facts	U655			
Angles in a quadrilateral	U732, U329			
Angles in polygons	U427			
Bearings	U525, U107			
Translations	U196			
Reflections	U799			
Enlargements	U519			
Rotations	U696			
Congruence	U790, U866			
Area and perimeter of simple shapes	U993, U970, U351, U226			
Area of triangles, parallelograms and trapeziums	U945, U575, U424, U265, U343			
Circles	U767			
Circumference	U604, U221			
Circle area	U950, U373			
Surface area	U929, U259, U871			
Volume of cuboids	U786			
Volume of prisms and cylinders	U174, U915			
Similar shapes	U551, U578			
Scale diagrams	U257			

Probability

Topic	Topic code	R	A	G
Probability scale	U803			
Probability of single events	U408, U510, U683			
Experimental probability	U580			
Expected outcomes	U166			
Listing elements in a set	U748, U296			
Probability from Venn diagrams	U476			
Frequency trees	U280			
Sample space diagrams	U104			
Tree diagrams	U558, U729			

Statistics

Topic	Topic code	R	A	G
Collecting data, frequency tables	U322, U120			
Two-way tables	U981			
Bar charts	U363, U557			
Pictograms	U506			
Pie charts	U508, U172			
Stem and leaf diagrams	U200, U909			
Mode	U260			
Mean	U291			
Median	U456			
Range	U526			
Choosing averages	U717			
Scatter graphs	U199, U277, U128			

GCSE

Mathematics

Practice Tests: Set 6

Paper 1F (Non-calculator)

Time: 1 hour 30 minutes

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser. Tracing paper may be used.

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators must not be used.**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. (a) Write 24 570 correct to the nearest thousand.

.....
(1)

- (b) Write 24 570 correct to the nearest hundred.

.....
(1)

(Total 2 marks)

2. The table shows part of a bus timetable from Shotton to Alton.

Shotton	07 30	08 00	09 00	10 00	11 00
Crook	07 45	08 15	09 15	10 15	11 15
Prudhoe	07 58	08 28	09 28	10 28	11 28
Hexham	08 15	08 45	09 45	10 45	11 45
Alton	08 30	09 00	10 00	11 00	12 00

A bus leaves Shotton at 07 30

- (a) What time should it arrive at Alton?

.....
(1)

Another bus leaves Prudhoe at 08 28

- (b) How many minutes should it take to get to Hexham?

..... minutes
(1)

Serena lives in Crook.

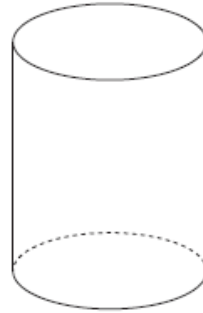
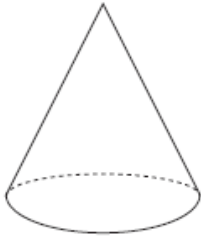
She has to be in Hexham by quarter past 11

- (c) What is the time of the latest bus she can catch from Crook to arrive in Hexham by quarter past 11?

.....
(1)

(Total 3 marks)

3. Write down the mathematical name of each of these solid shapes.



(i)

(ii)

(Total 2 marks)

4. (a) Write these numbers in order of size.
Start with the smallest number.

358 835 709 98 145

.....
(1)

(b) Write these numbers in order of size.
Start with the smallest number.

4 -5 7 -1 -8

.....
(1)

(c) Write these numbers in order of size.
Start with the smallest number.

$\frac{1}{4}$ 0.2 40% $\frac{3}{4}$ 0.5

.....
(2)

(Total 4 marks)

5. (a) Simplify $2x + 2x$

.....
(1)

(b) Simplify $5y - 2y$

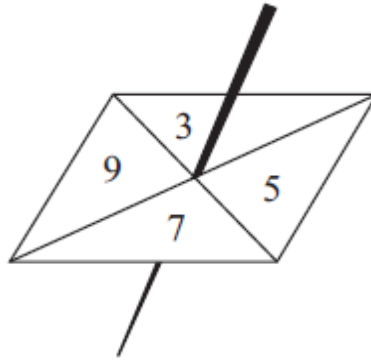
.....
(1)

(c) Simplify $2 \times 4p$

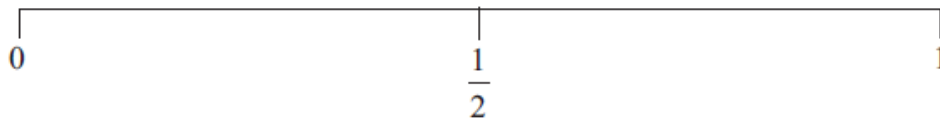
.....
(1)

(Total 3 marks)

6. Ed spins a fair 4-sided spinner once.
The spinner can land on 3 or on 5 or on 7 or on 9

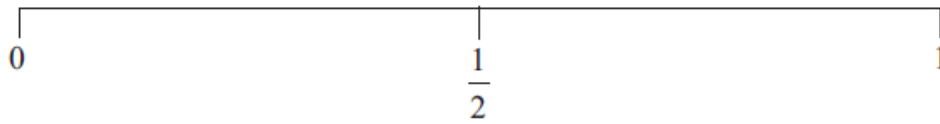


- (a) On the probability scale below mark, with a cross (\times), the probability that the spinner will land on an odd number.



(1)

- (b) On the probability scale below mark, with a cross (\times), the probability that the spinner will land on 3



(1)

(Total 2 marks)

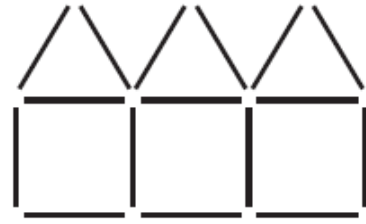
7. Here is a sequence of patterns made from sticks.



pattern number 1



pattern number 2



pattern number 3

Work out the number of sticks needed to make pattern number 10

.....

(Total 3 marks)



8. Here are the ticket prices for entry to a museum.

<p style="text-align: center;">Ticket prices</p> <p style="text-align: center;">Adult ticket £12 Child ticket £7 Senior ticket £8</p> <p style="text-align: center;">Family ticket (2 adult tickets and 2 child tickets) £30</p>

Shamus takes his family to the museum.

He gets tickets for

2 adults,
3 children,
1 senior.

Shamus pays the least possible amount of money for the tickets.
He pays with three £20 notes.

How much change should he get?

£.....

(Total 4 marks)

9. Brian is making a fence.

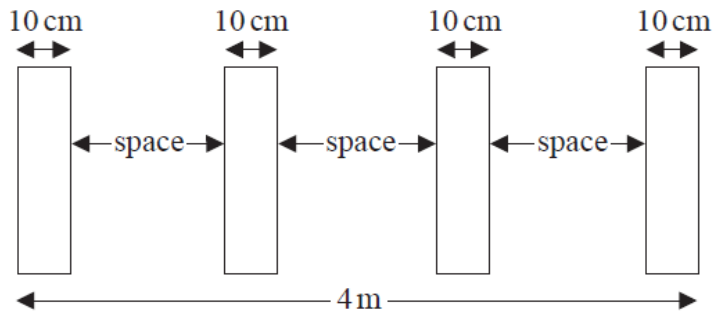


Diagram **NOT**
accurately drawn

The fence will be 4 m long.

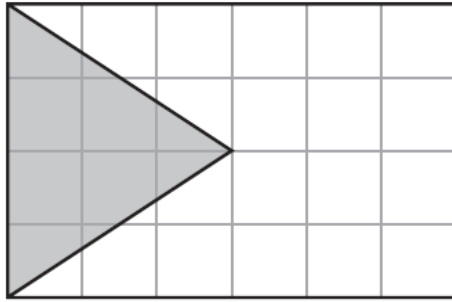
Brian uses four posts.
Each post has a width of 10 cm.

Brian wants to have spaces of equal width between the posts.

Work out the width of each space.
You must show your working.

(Total 4 marks)

10. The diagram shows a flag drawn on a grid of squares.



(a) Colin says that $\frac{1}{4}$ of the flag is shaded.

Colin is right.
Explain why.

.....
.....
.....
.....

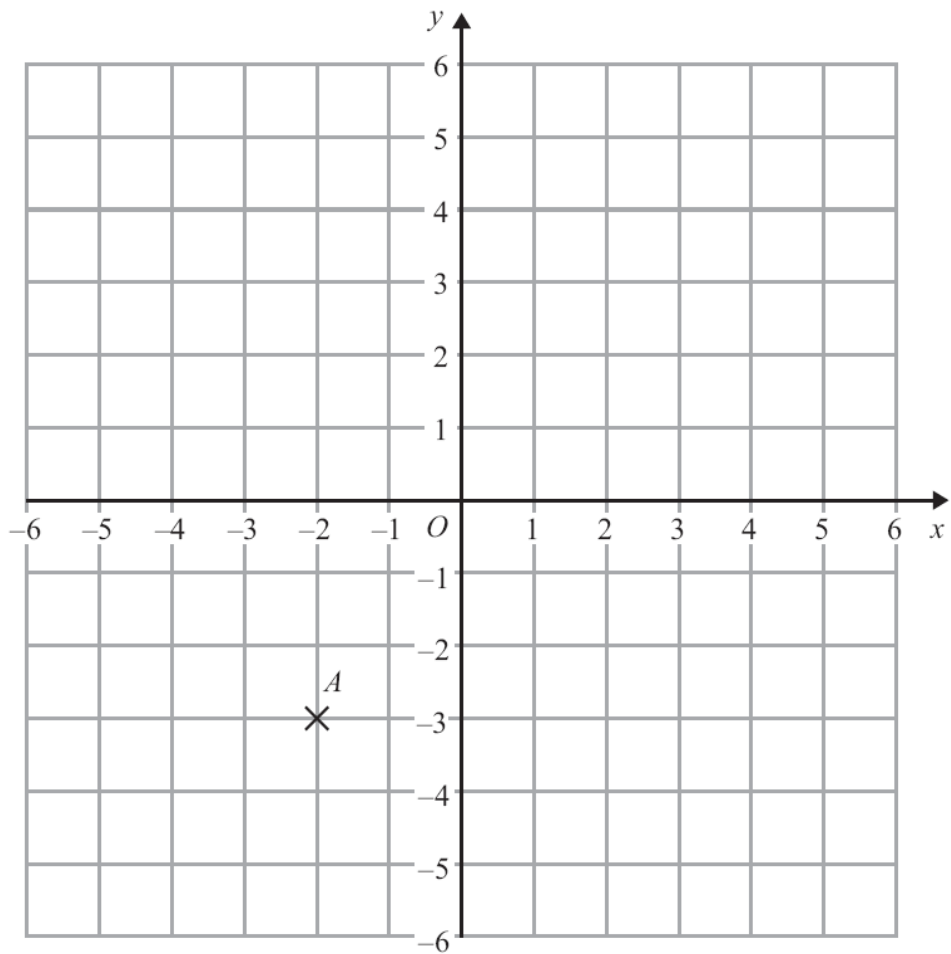
(2)

(b) What percentage of the flag is **not** shaded?

..... %
(1)

(Total 3 marks)

11.



(a) (i) Write down the coordinates of the point A.

(.....,))

(ii) On the grid, mark with a cross (x) the point with coordinates (5, 2).
Label this point B.

(2)

(b) On the grid, draw the line with equation $y = 3$.

(1)

(Total 3 marks)

12. Which of these is the largest fraction?

$$\frac{7}{10} \quad \frac{3}{5} \quad \frac{29}{40}$$

You must show clearly how you got your answer.

(Total 3 marks)

13. Here are the ingredients needed to make 12 shortcakes.

<p style="text-align: center;">Shortcakes Makes 12 shortcakes 50 g of sugar 200 g of butter 200 g of flour 10 ml of milk</p>
--

Liz makes some shortcakes.

She uses 25 ml of milk.

- (a) How many shortcakes does Liz make?

.....
(2)

Robert has 500 g of sugar
 1000 g of butter
 1000 g of flour
 500 ml of milk

- (b) Work out the greatest number of shortcakes Robert can make.

.....
(2)

(Total 4 marks)

- 14.** Ria is going to buy a caravan.
The total cost of the caravan is £7000 **plus** VAT at 20%.

Ria pays a deposit of £3000.
She pays the rest of the total cost in 6 equal monthly payments.

Work out the amount of each monthly payment.

£.....

(Total 4 marks)

- 15.** Buses to Acton leave a bus station every 24 minutes.
Buses to Barton leave the same bus station every 20 minutes.

A bus to Acton and a bus to Barton both leave the bus station at 9 00 am.

When will a bus to Acton and a bus to Barton next leave the bus station at the same time?

.....
(Total 3 marks)

16. The table shows information about the number of grams of protein, of carbohydrate and of fat in 100 grams of regular yoghurt and in 100 grams of low fat yoghurt.

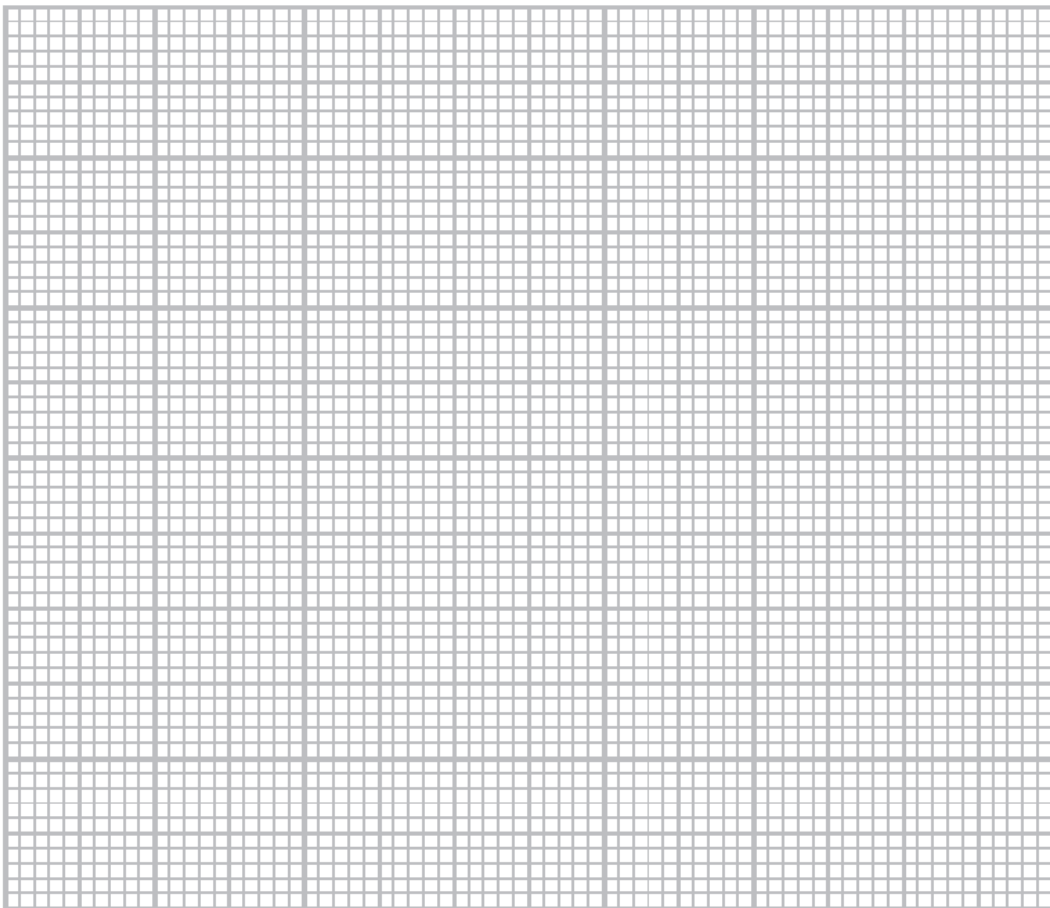
	Protein	Carbohydrate	Fat
Regular	4.7	4.7	3.4
Low Fat	5.9	5.8	0.2

- (a) Work out the number of grams of protein in 200 g of regular yoghurt.

..... g
(1)

Jamie is going to compare the information in the table.

- (b) On the grid, draw a suitable diagram or chart he could use.

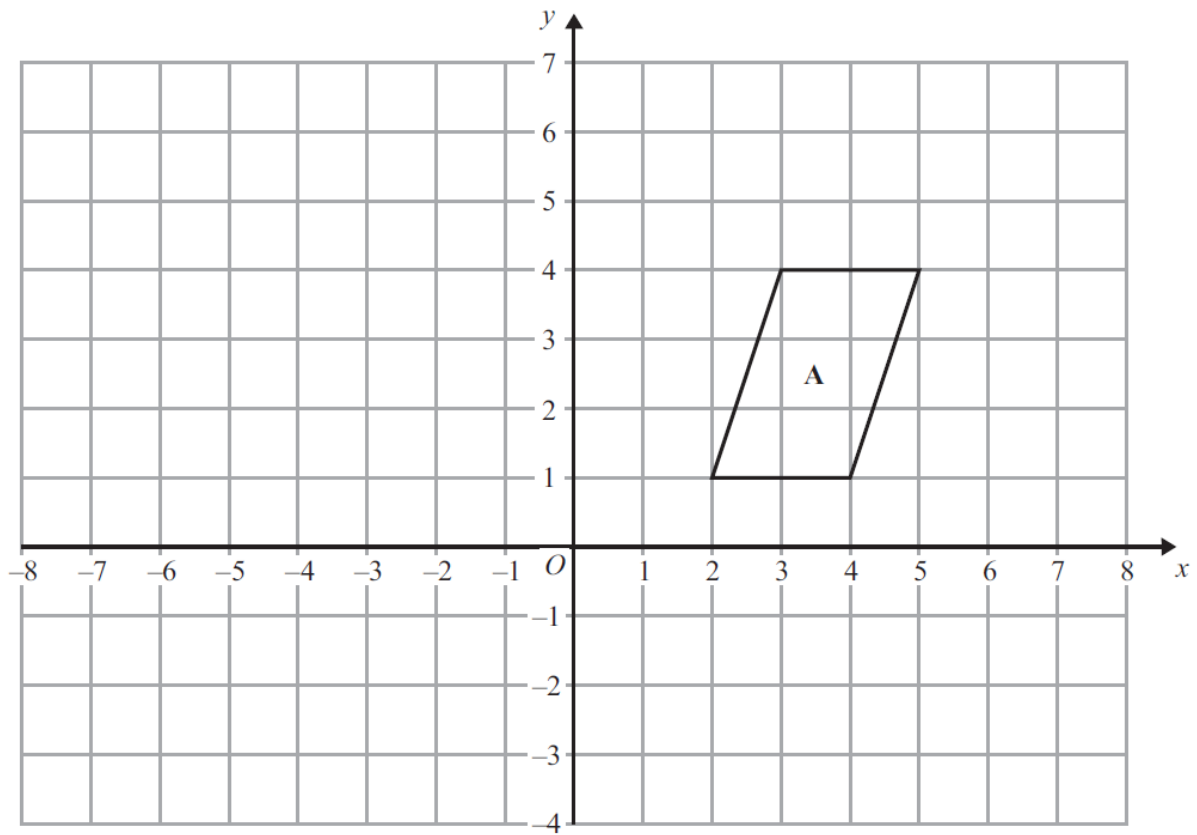


(4)

(Total 5 marks)

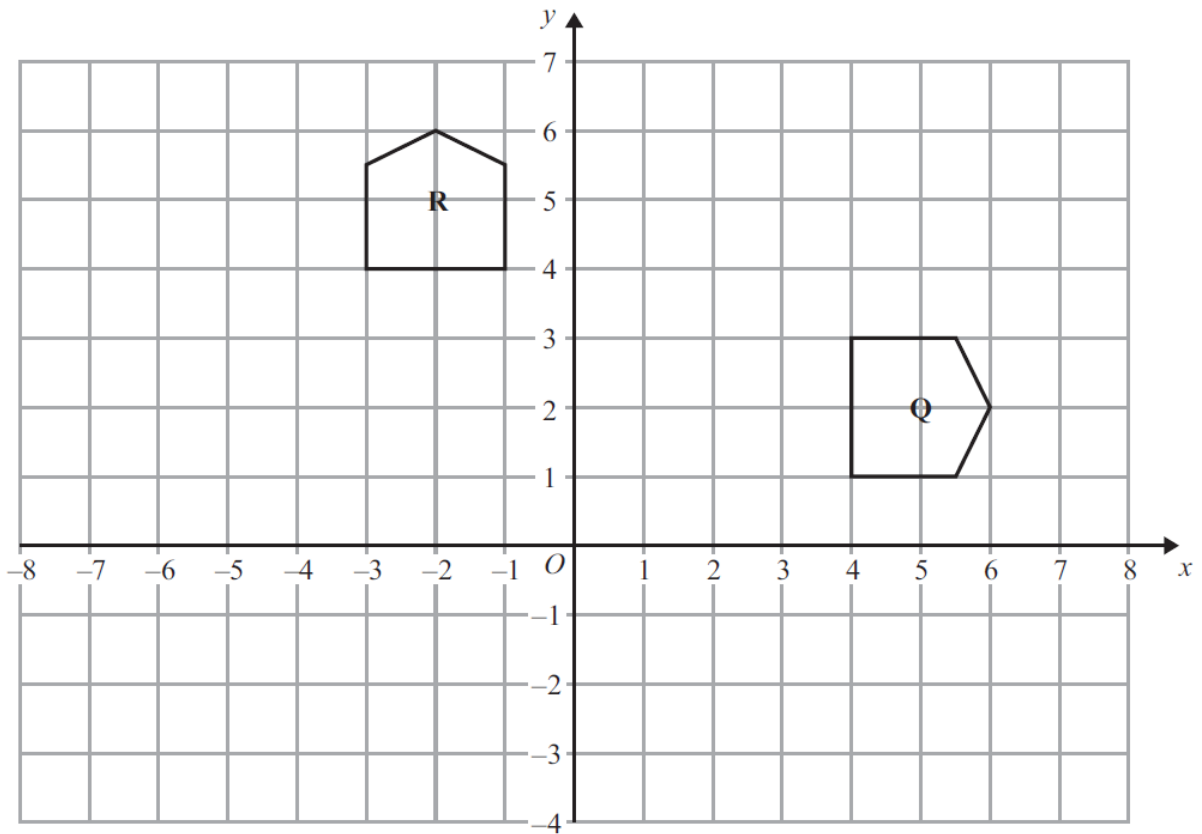


17.



(a) Translate shape A by the vector $\begin{pmatrix} -3 \\ 2 \end{pmatrix}$.

(1)



(b) Describe fully the single transformation that maps shape **Q** onto shape **R**.

.....

.....

.....

.....

(3)

(Total 4 marks)



18. (a) Write down the value of 10^0 .

.....
(1)

(b) Write down the value of 10^{-2} .

.....
(1)

(c) Write these numbers in order of size.
Start with the smallest number.

2.73×10^3 27.3×10^{-3} 273×10^2 0.00273

.....
(2)

(Total 4 marks)

19. Matthew puts 3 red counters and 5 blue counters in a bag.

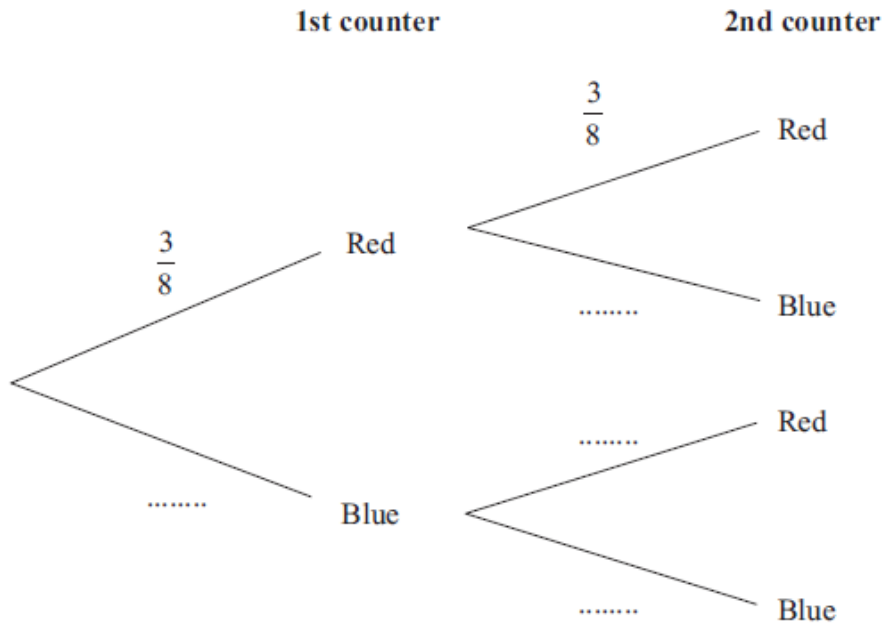
He takes at random a counter from the bag.

He writes down the colour of the counter.

He puts the counter in the bag again.

He then takes at random a second counter from the bag.

(a) Complete the probability tree diagram.

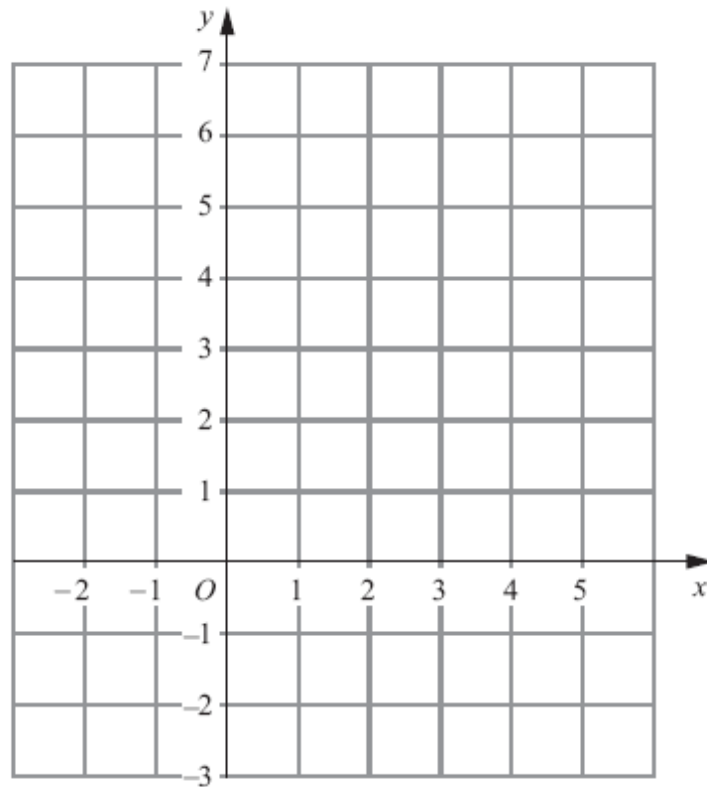


(2)

(b) Work out the probability that Matthew takes two red counters.

.....
(2)
(Total 4 marks)

20. On the grid draw the graph of $x + y = 4$ for values of x from -2 to 5



(Total 3 marks)

21. The diagram shows the plan of a floor.

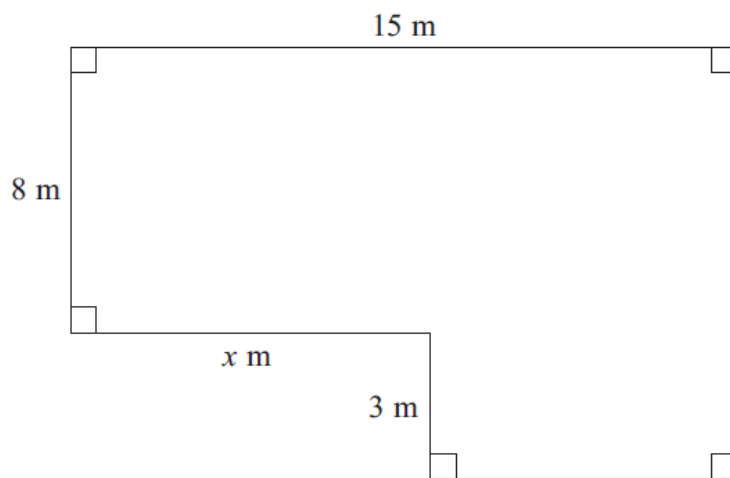


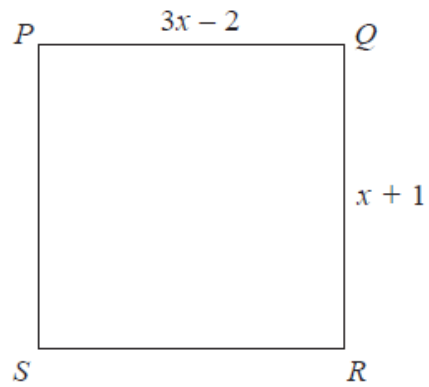
Diagram NOT
accurately drawn

The area of the floor is 138 m^2 .

Work out the value of x .

(Total 4 marks)

22. $PQRS$ is a square.



All measurements are in centimetres.

Show that the perimeter of the square is 10 cm.

(Total 4 marks)

23. Peter, Tarish and Ben share £54.

Tarish gets three times as much money as Peter.

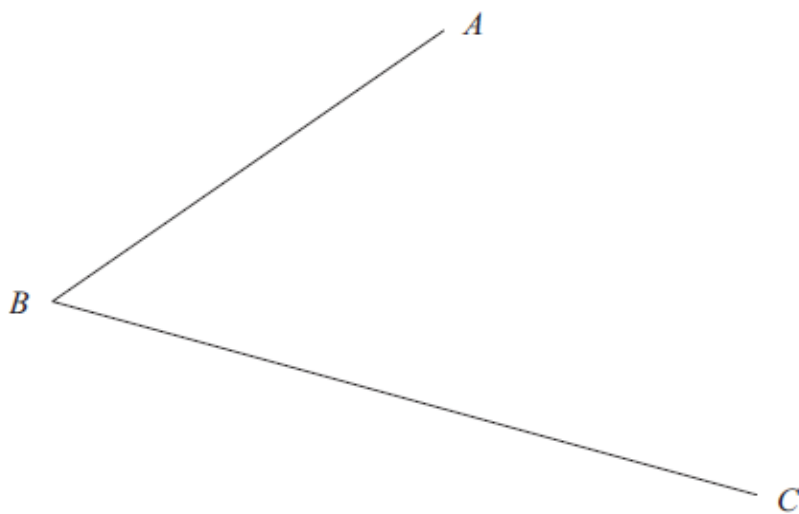
Ben gets twice as much money as Tarish.

How much money does Ben get?

£

(Total 3 marks)

24. Use ruler and compasses to construct the bisector of angle ABC .
You must show all your construction lines.



(Total 2 marks)

TOTAL FOR PAPER IS 80 MARKS

1MA1 Practice papers Set 6: Paper 1F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
1	(a)		25000	1	B1 cao
	(b)		24600	1	B1 cao
2	(a)		08 30	1	B1 for 08 30 oe
	(b)		17	1	B1 cao
	(c)		10 15	1	B1 for 10 15 oe
3	(i)		Cone	2	B1 (accept incorrect spelling if intention is clear)
	(ii)		Cylinder		B1 (accept incorrect spelling if intention is clear)
4	(a)		98 145 358 709 835	1	B1 cao
	(b)		-8 -5 -1 4 7	1	B1 cao
	(c)	(0.2, 0.25, 0.4, 0.5, 0.75) ($\frac{4}{20}, \frac{5}{20}, \frac{8}{20}, \frac{10}{20}, \frac{15}{20}$) (20%, 25%, 40%, 50%, 75%)	0.2 $\frac{1}{4}$ 40% 0.5 $\frac{3}{4}$	2	M1 for two correct conversions into the same form A1 cao
5	(a)		4x	1	B1 cao
	(b)		3y	1	B1 cao
	(c)		8p	1	B1 cao
6	(a)		mark at 1	1	B1 for × within the overlay (within 1 cm of 1)
	(b)		mark at $\frac{1}{4}$	1	B1 for × within the overlay (between 2 and 4 cm from 0)
7		6, 11, 16, ...	51	3	M1 for a correct pattern number (> 3) drawn M1 for pattern number 10 drawn A1 cao OR M1 for 6, 11, 16, (...) or + 5 seen M1 for continuing the sequence to at least the 10th term (condone one arithmetic error) A1 cao

1MA1 Practice papers Set 6: Paper 1F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
				OR M1 for $5n$ M1 for $5 \times 10 + 1$ oe or $5n + 1$ A1 cao
8	$F + C + S$ $30 + 7 + 8 = 45$ $3 \times 20 - 45 = 15$	15	4	M2 for $30 + 7 + 8 (= 45)$ (M1 for $12 \times 2 + 7 \times 3 + 8 (= 53)$ or $12 \times 2 + 7 \times 2 (= 38)$) M1 (dep on at least M1) for “ 20×3 ” – “45” or “ 20×3 ” – “53” A1 cao
9		1.2m or 120cm	4	B1 for evidence of using $1 \text{ m} = 100 \text{ cm}$ M1 for subtracting the four post widths from the total length eg $4 - 4 \times 10 (= 360)$ or “400” – 4×10 or $3x + 40 = 400$ (oe) M1 for dividing their total space found by 3 or subtracting 40 from both sides of $3x + 40 = 400$ C1 for correct conclusion for 1.2m or 120cm with supported working
10	(a)	Correct explanation	2	M1 for working out area of triangle (=6) and area of rectangle (=24) or for dividing rectangle into eighths or other comparable areas A1 for explaining that that $24 \div 6$ is 4 or $\frac{2}{8} = \frac{1}{4}$ or that $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ from symmetry of shape
	(b)	75	1	B1 cao
11	(a)(i)	$(-2, -3)$	2	B1 cao
	(a)(ii)	Cross at (5, 2)		B1
	(b)	$y = 3$	1	B1 for correct line (at least 2 cm spanning the y axis)

1MA1 Practice papers Set 6: Paper 1F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
12		$\frac{29}{40}$	3	M1 for writing $\frac{7}{10}$ as $\frac{28}{40}$ or $\frac{3}{5}$ as $\frac{24}{40}$ M1 for writing $\frac{7}{10}$ as $\frac{28}{40}$ and $\frac{3}{5}$ as $\frac{24}{40}$ C1 for correct conclusion with supportive evidence
13	(a)	30	2	M1 for $25 \div 10$ or 2.5 seen or $10 \div 25$ or 0.4 seen or $12 + 12 + 6$ oe or a complete method, e.g. $25 \times 12 \div 10$ oe A1 cao
	(b)	$1000 \div 200 \times 12$	2	M1 for $500 \div 50$ or $1000 \div 200$ or $500 \div 10$ OR correct scale factor clearly linked with one ingredient, e.g. 10 with sugar or 5 with butter or flour or 50 with milk OR answer of 120 or 600 A1 cao
14		900	4	M1 for $0.2 \times 7000 (= 1400)$ or $1.2 \times 7000 (= 8400)$ oe M1 for $7000 + "1400" - 3000 (= 5400)$ oe M1 for $"5400" \div 6$ A1 cao
15	Acton after 24, 48, 72, 96... Barton after 20, 40, 60, 80. LCM of 20 and 24 is 120	11:00 am	3	M1 for listing multiples of 20 and 24 with at least 3 numbers in each list ; multiples could be given in minutes or in hours and minutes (condone one addition error in total in first 3 numbers in lists) A1 identify 120 (mins) or 2 (hours) as LCM

1MA1 Practice papers Set 6: Paper 1F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
	<p>9:00 am + 120 minutes</p> <p>OR</p> <p>Acton after 24, 48, 1h 12m</p> <p>Barton after 20, 40, 1 h</p> <p>LCM is 2 hours</p> <p>9:00 am + 2 hours</p> <p>OR</p> <p>Times from 9:00 am when each service leaves the bus station</p> <p>Acton at 9:24, 9:48, 10:12</p> <p>Barton at 9:20, 9:40, 10:00</p> <p>OR</p> <p>$20 = 2 \times 2 \times 5$</p> <p>$24 = 2 \times 2 \times 2 \times 3$</p> <p>$2 \times 2 \times 2 \times 3 \times 5 = 120$</p>			<p>A1 for 11:00 (am) or 11(am) or 11 o'clock</p> <p>OR</p> <p>M1 for listing times after 9am when each bus leaves the bus station, with at least 3 times in each list (condone one addition error in total in first 3 times after 9 am in lists)</p> <p>A1 for correct times in each list up to and including 11:00</p> <p>A1 for 11:00 (am) or 11(am) or 11 o'clock</p> <p>OR</p> <p>M1 for correct method to write 20 and 24 in terms of their prime factors 2, 2, 5 and 2, 2, 2, 3 (condone one error)</p> <p>A1 identify 120 as LCM</p> <p>A1 for 11:00 (am) or 11(am) or 11 o'clock</p>
16	(a) (b)	9.4 Diagram or chart	1 4	<p>B1 cao</p> <p>B1 for a key, or suitable labels, to identify regular yoghurt and low fat yoghurt.</p> <p>B1 for diagram(s) or chart(s) set up for comparison, showing data for protein, carbohydrate and fat, e.g. dual bar chart, line graph, etc</p> <p>B1 for correct heights for regular yoghurt or low fat yoghurt, dependent on a linear scale</p> <p>C1 for a fully correct diagram or chart to include labels for protein, carbohydrate and fat and vertical axis correctly scaled and labelled</p>

17	(a)		Shape with vertices at (-1, 3), (0, 6), (2, 6), (1, 3)	1	B1 for correct shape in correct position
	(b)		Rotation centre (0,0) 90° anticlockwise	3	B1 rotation B1 (centre) (0,0) B1 90° anticlockwise or 270° clockwise Note: award no marks if more than one transformation is given
18	(a)		1	1	B1 cao
	(b)		$\frac{1}{100}$	1	B1 for $\frac{1}{100}$ or 0.01
	(c)		0.00273 27.3×10^{-3} 2.73×10^3 273×10^2	2	M1 for converting all numbers to same form with at least one conversion correct A1 for fully correct order with correct numbers in any correct form (SC B1 if one number incorrectly placed or all 4 numbers listed in reverse order)
19	(a)		$\frac{5}{8}$ $\frac{5}{8}, \frac{3}{8}, \frac{5}{8}$	2	B1 for $\frac{5}{8}$ correct for 1 st counter B1 for $\frac{5}{8}, \frac{3}{8}, \frac{5}{8}$ correct for 2 nd counter
	(b)	$\frac{3}{8} \times \frac{3}{8}$	$\frac{9}{64}$ oe	2	M1 for $\frac{3}{8} \times \frac{3}{8}$ A1 for $\frac{9}{64}$ oe

20		<table border="1" data-bbox="331 241 609 353"> <tr> <td>x</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>y</td> <td>6</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> </tr> </table>	x	-2	-1	0	1	2	3	y	6	5	4	3	2	1	graph	3	<p>(Table of values)</p> <p>M1 for at least 2 correct attempts to find points by substituting values of x</p> <p>M1 ft for plotting at least 2 of their points</p> <p>(any points plotted from their table must be correct)</p> <p>A1 for correct line between $x = -2$ and $x = 5$</p> <p>or</p> <p>(No table of values)</p> <p>M2 for at least 2 correct points (and no incorrect points) plotted</p> <p>or line segment of $x + y = 4$ drawn</p> <p>(M1 for at least 3 correct points plotted with no more than 2 incorrect)</p> <p>A1 for correct line between $x = -2$ and $x = 5$</p> <p>or</p> <p>(Use of $y = mx + c$)</p> <p>M2 for at least 2 correct points (and no incorrect points) plotted</p> <p>(M1 for $y = 4 - x$ or line drawn with gradient of -1 or line drawn with a y intercept of 4 and a negative gradient)</p> <p>A1 for correct line between $x = -2$ and $x = 5$</p>
x	-2	-1	0	1	2	3													
y	6	5	4	3	2	1													
21			9	4	<p>M1 for method to find area of one rectangle,</p> <p>eg $15 \times 8 (= 120)$ or $15 \times 11 (= 165)$</p> <p>M1 (dep) for subtracting from/by given area,</p> <p>eg $(138 - "120") (= 18)$ or $"165" - 138 (= 27)$</p> <p>M1 for final step from complete method shown,</p> <p>eg $15 - "18" \div 3$ or $"27" \div 3$</p> <p>A1 cao</p> <p>OR</p>														

					<p>M1 for a correct expression for the area of one rectangle, eg $(8 + 3) \times (15 - x)$ or $8 \times x$</p> <p>M1 (dep) for a correct equation eg $(8 + 3) \times (15 - x) + 8 \times x = 138$</p> <p>M1 for correct method to isolate x, eg $3x = 27$</p> <p>A1 cao</p>
22			Proof	4	<p>M1 for setting up a correct equation in x, eg. $3x - 2 = x + 1$</p> <p>M1 (dep) for a fully correct method to solve their equation or for $x = 1.5$</p> <p>M1 (dep) for $(\text{"1.5"} + 1) \times 4$ or $(3 \times \text{"1.5"} - 2) \times 4$ or $(3 \times \text{"1.5"} - 2) \times 2 + (\text{"1.5"} + 1) \times 2$</p> <p>C1 (dep on M3) for completing the proof resulting in a perimeter of 10</p> <p>OR</p> <p>M1 for setting up a correct equation in x, eg. $2(3x - 2) + 2(x + 1) = 10$</p> <p>M1 (dep) for a fully correct method to solve their equation or for $x = 1.5$</p> <p>M1 (dep) for $\text{"1.5"} + 1$ and $3 \times \text{"1.5"} - 2$</p> <p>C1 (dep on M3) for completing the proof resulting in a justification that the shape is a square</p>

23		<p>P: T: B = 1: 3: 6 $54 \div 10 \times 6$</p> <p>OR</p> <p>e.g. $T = 3P$ $B = 2T$ So, $B = 2(3P) = 6P$ $P+T+B=P+3P+6P=10P$ $P = 54 \div 10 = \text{£}5.40$ $B = 6 \times \text{£}5.40$</p>	32.40	3	<p>M1 for 1 : 3 : 6 or any three numbers in the ratio 1:3:6 in any order M1 for $54 \div (1 + 3 + 6) \times 6$ A1 for 32.4(0)</p> <p>Alternative</p> <p>M1 for 1: 3: 6 oe or $P + 3P + 6P (=10P)$ oe, e.g. $T/3 + T + 2T (=10T/3)$ or e.g. $B/6 + B/2 + B (=10B/6)$ or 5.4(0) or 16.2(0) seen</p> <p>M1 for $54 \div 10 \times 6$ or $[54 \frac{\div' 10}{3'}] \times 2$ or $54 \frac{\div' 10}{6'}$ oe A1 for 32.4(0)</p> <p>OR</p> <p>M1 for a partial decomposition of £54 in ratio 1:3:6, e.g. (£)5 + (£)15 + (£)30 (= (£)50) M1 for a decomposition of the remaining amount in ratio 1:3:6, e.g. 40(p) + 120(p) + 240 (=400(p)) A1 for 32.4(0)</p>
24				2	<p>M1 for correct intersecting arcs A1 for correct angle bisector</p>

GCSE Mathematics

Practice Tests: Set 6

Paper 2F (Calculator)

Time: 1 hour 30 minutes

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions.
Write your answers in the spaces provided.
You must write down all the stages in your working.

1. Write 0.5 as a fraction.

.....

(Total 1 mark)

2. Write $\frac{17}{100}$ as a decimal.

.....

(Total 1 mark)

3. Write 40 out of 50 as a fraction.
Give your fraction in its simplest form.

.....

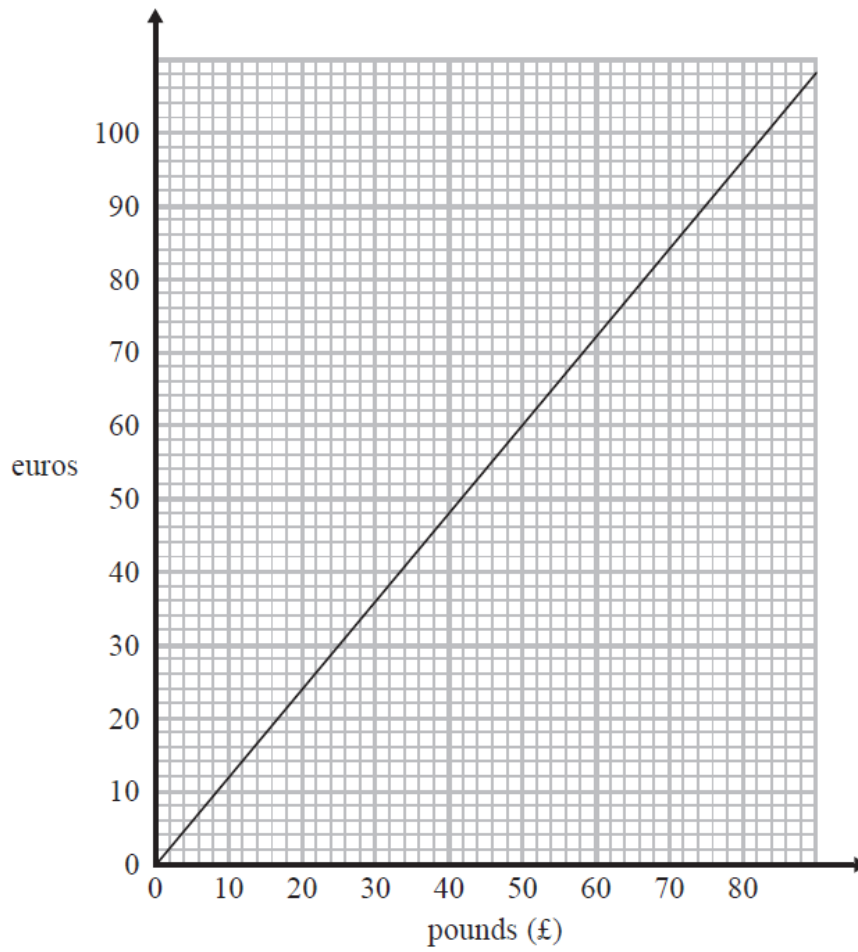
(Total 2 marks)

4. Work out $\frac{3}{4}$ of 24

.....

(Total 2 marks)

5. You can use this conversion graph to change between pounds (£) and euros.



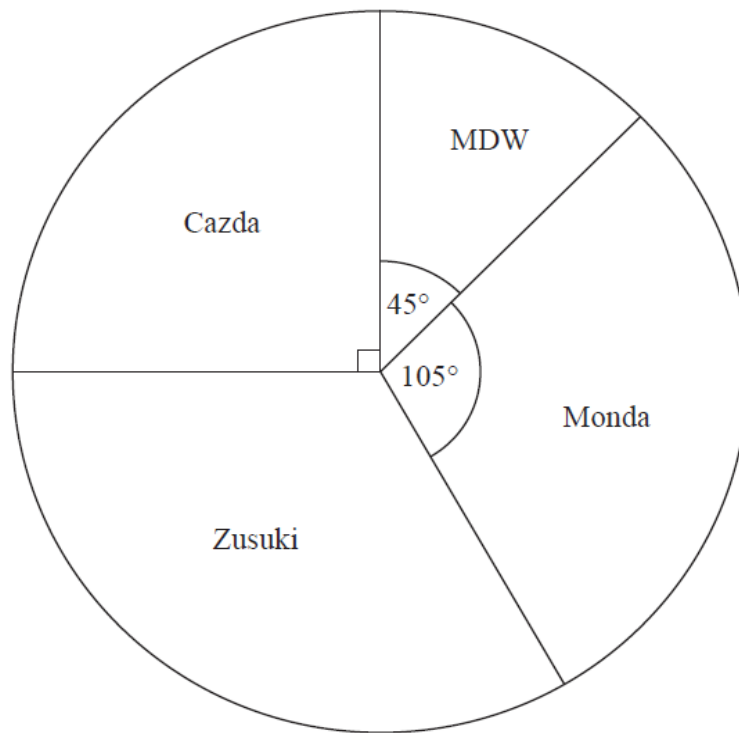
Change 150 euros into pounds (£).

£.....

(Total 2 marks)

6. Some drivers are asked which make of car they like best.

The pie chart and table show some information about their answers.



Complete the table.

Make of car	Number of drivers	Angle of sector
MDW	18	45°
Cazda	90°
Zusuki	48
Monda	105°

(Total 4 marks)

7. Jane wants to buy some compost.
Both Suttons Shop and Greens Garden Shop sell compost.



Jane needs 140 litres of compost.
She wants to buy all the compost from the same shop.
She wants to buy the compost as cheaply as possible.

Which shop should Jane buy the compost from?
You must show all your working.

(Total 4 marks)

8. David drives to the supermarket on his way home from work.

The table shows some information about his journey.

	Time
Leaves work	1730
Gets to supermarket	1745
Leaves supermarket	1810

(a) How many minutes is David at the supermarket?

..... minutes
(1)

David leaves the supermarket at 1810.
He drives 20 miles to his home.
The speed limit for the journey is 30 mph.

David drives within the speed limit.

(b) Can David get home before 1900?
Give reasons for your answer.

(3)

(Total 4 marks)

9. $a = 4b$

(a) Work out the value of a when $b = 3$.

$a = \dots\dots\dots$
(1)

$P = 4d - 3$

(b) Work out the value of P when $d = 2$.

$P = \dots\dots\dots$
(2)

(Total 3 marks)

10. Here are the first five terms of a number sequence.

17 21 25 29 33

(a) Write down the next two terms of the sequence.

$\dots\dots\dots, \dots\dots\dots$
(2)

(b) Explain how you found your terms.

$\dots\dots\dots$
(1)

(c) Work out the 12th term of the sequence.

$\dots\dots\dots$
(1)

(d) Explain why 70 is not a term of this sequence.

$\dots\dots\dots$
(1)

(Total 5 marks)

- 11.** Julie buys 19 identical calculators.
The total cost is £143.64

Work out the total cost of 31 of these calculators.

£

(Total 3 marks)

12. When you buy something from Quickmart you get points.

<p>Smart Phone</p> <p>£419</p> <p>get 838 points</p>
--

<p>DVDs</p> <p>£8.99 each</p> <p>get 16 points for each DVD you buy</p>

<p>Lawnmower</p> <p>Basic £57 Electric £81</p> <p>get 12 points for every £3 you spend</p>

Chantal buys a Smart Phone, 4 DVDs and a basic lawnmower from Quickmart.

(a) Work out how many points she gets.

.....points
(3)

You can get money off the cost of your shopping at Quickmart.

<p>Get £2.40 off the cost of your shopping for every 500 points</p>
--

Louis has 4500 points.

He wants to get a DVD player costing £22
He wants to use his points to get the DVD player.

(b) Does Louis have enough points to get the DVD player?

(4)

(Total 7 marks)

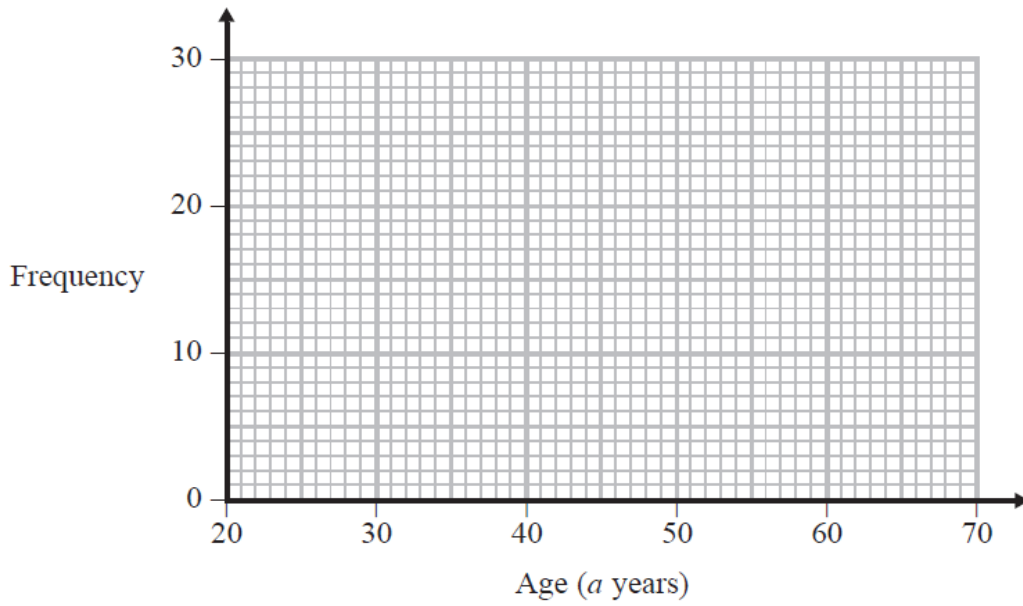
13. The table shows some information about the ages of 60 teachers.

Age (a years)	Frequency
$20 < a \leq 30$	6
$30 < a \leq 40$	16
$40 < a \leq 50$	14
$50 < a \leq 60$	22
$60 < a \leq 70$	2

(a) Write down the modal class interval.

.....
(1)

(b) Draw a frequency polygon for the information in the table.



(2)

(Total 3 marks)

14. Sal asked 60 adults if they liked Chinese food best or Italian food best or Thai food best.

29 of the adults were women.

6 of the women liked Thai food best.

10 of the men liked Chinese food best.

8 of the 13 adults who liked Italian food best were women.

Work out the number of men who liked Thai food best.

.....
(Total 4 marks)

15. The diagram shows a path around a pond.

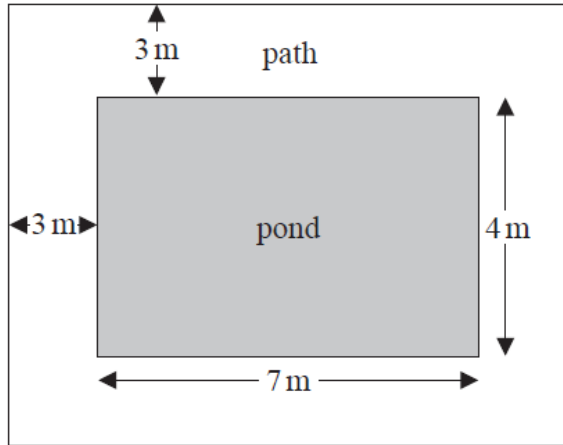


Diagram **NOT** accurately drawn

The pond is in the shape of a rectangle with length 7 m and width 4 m.
The path is 3 m wide.

Ali is going to cover the path with gravel.
One bag of gravel will cover 10 m^2 of the path.

How many bags of gravel does Ali need to buy?
You must show your working.

..... bags

(Total 4 marks)

16.

likely	impossible	certain	evens	unlikely
--------	------------	---------	-------	----------

(a) Use a word from the box which best describes the probability of each of the following events.

(i) When you throw an ordinary coin you get a tail.

.....

(ii) When you throw an ordinary dice you get a number less than 7.

.....

(2)

Bill has some counters in a bag.

3 of the counters are red.

7 of the counters are blue.

The rest of the counters are yellow.

Bill takes at random a counter from the bag.

The probability that he takes a yellow counter is $\frac{2}{7}$.

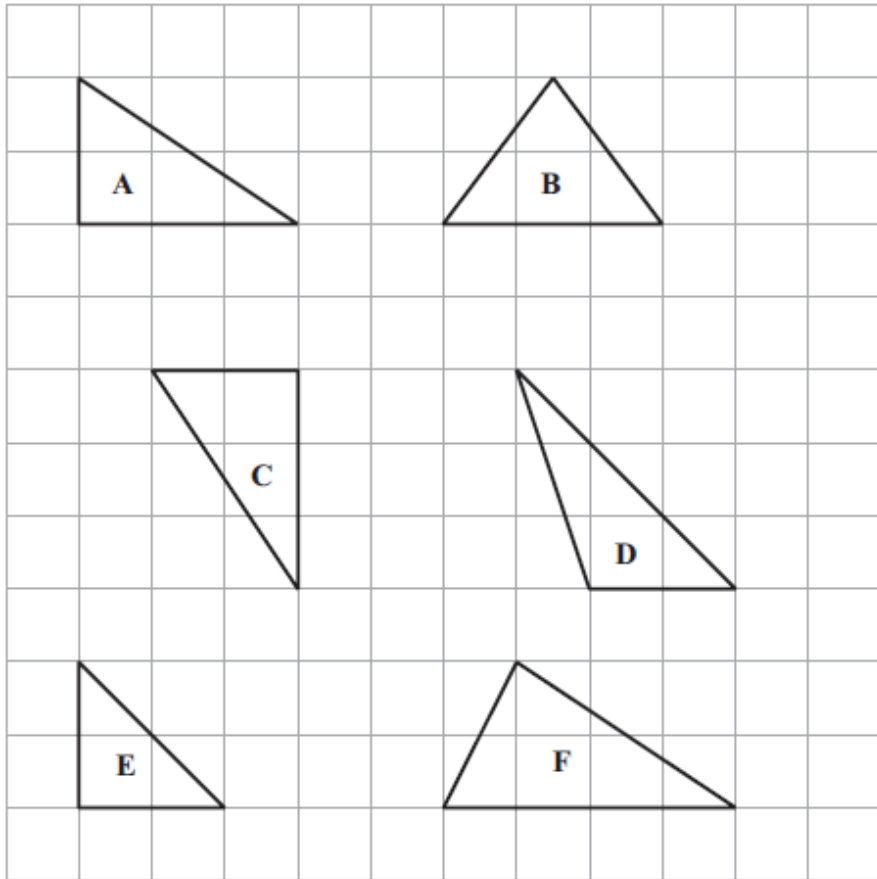
(b) How many yellow counters are in the bag before Bill takes a counter?

.....

(2)

(Total 4 marks)

17. Here are 6 triangles drawn on a grid of centimetre squares.



(a) Write down the letters of the two congruent triangles.

.....
(1)

(b) Write down the letter of an isosceles triangle.

.....
(1)

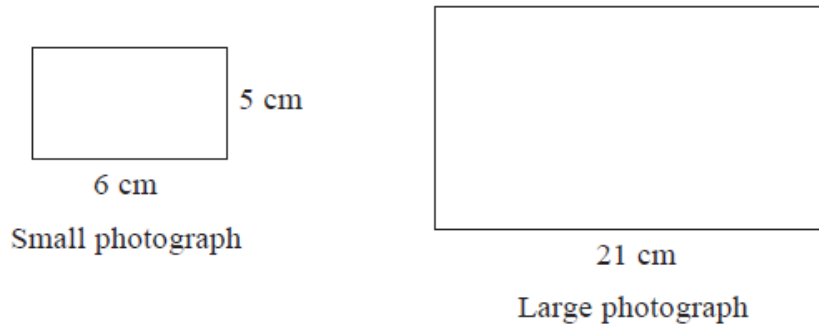
(c) Find the area of triangle E.

..... cm²
(1)

(Total 3 marks)

18. A small photograph has a length of 6 cm and a width of 5 cm.
The small photograph is enlarged to make a large photograph.

The large photograph has a length of 21 cm.



The two photographs are similar rectangles.

Work out the perimeter of the large photograph.

..... cm

(Total 3 marks)

19. Ann has some cards.

Beth has 4 cards more than Ann.

Cath has three times as many cards as Beth.

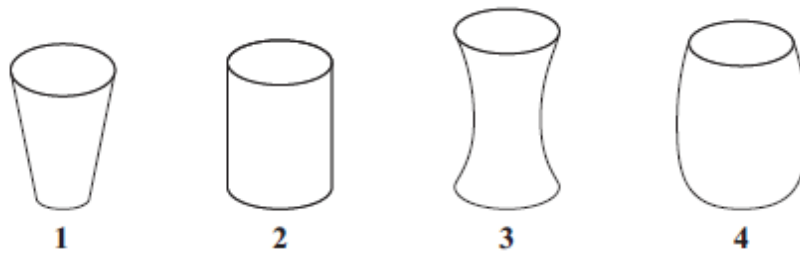
The total number of cards is 51

How many cards does each of the three people have?

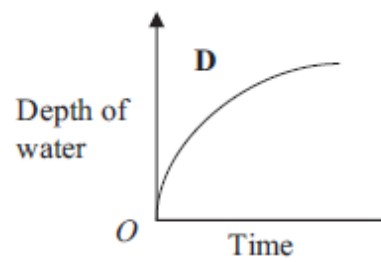
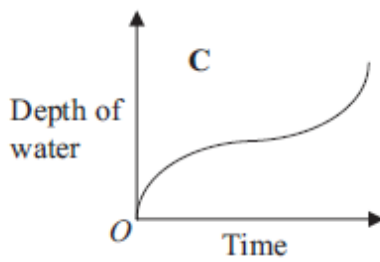
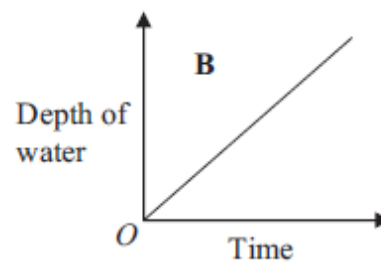
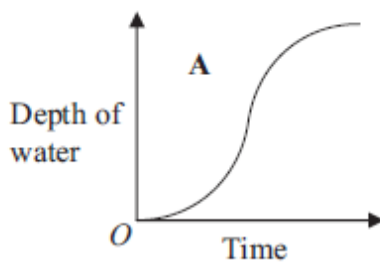
You must show all your working.

(Total 5 marks)

20. Here are four containers.
Water is poured into each container at a constant rate.



Here are four graphs.
The graphs show how the depth of the water in each container changes with time.



Match each graph with the correct container.

A and

B and

C and

D and

(Total 2 marks)

21. A factory makes metal bottle tops.

When a bottle top is too big or too small it does not fit the bottle.

The probability that a bottle top is too big is 0.008

The probability that a bottle top is too small is 0.015

A bottle top is taken at random.

Work out the probability that the bottle top **does** fit the bottle.

.....
(Total 2 marks)

22. The diagram shows the positions of three turbines A , B and C .

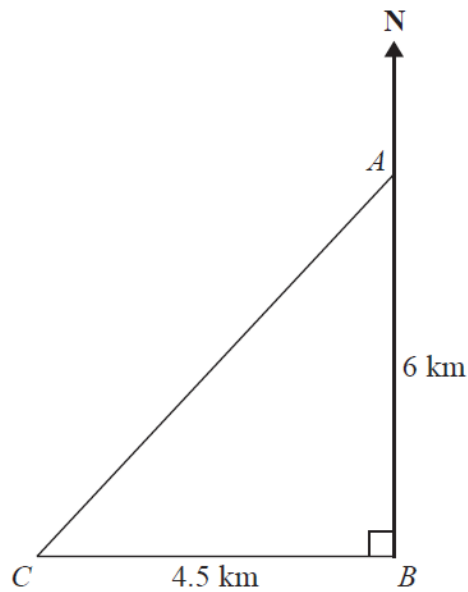


Diagram **NOT**
accurately drawn

A is 6 km due north of turbine B .
 C is 4.5 km due west of turbine B .

(a) Calculate the distance AC .

..... km
(3)

(b) Calculate the bearing of C from A .
Give your answer correct to the nearest degree.

..... °
(4)

(Total 7 marks)

23. A rugby team played six games.
The mean score for the six games is 14.5

The rugby team played one more game.
The mean score for all seven games is 16

Work out the number of points the team scored in the seventh game.

..... points

(Total 2 marks)

24. $ABCDE$ and $PQRST$ are regular pentagons.

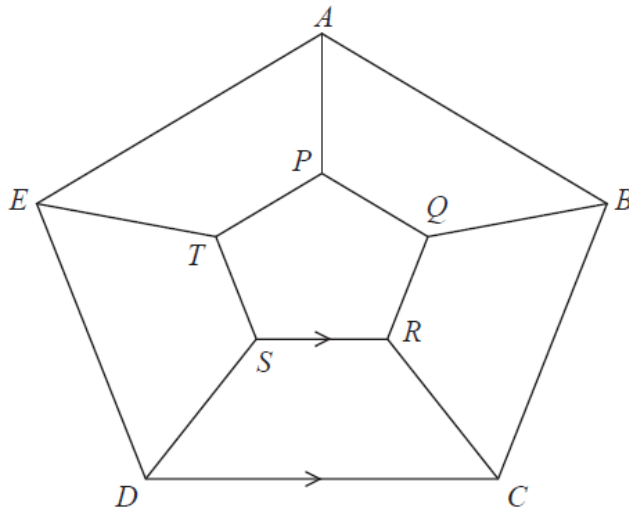


Diagram **NOT** accurately drawn

SR is parallel to DC
 $AP = BQ = CR = DS = ET$

Work out the size of angle SRC .
 You must show all your working.

.....°

(Total 3 marks)

TOTAL FOR PAPER IS 80 MARKS

1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
1		$\frac{1}{2}$	1	B1 for $\frac{1}{2}$ or an equivalent fraction
2		0.17	1	B1 cao
3		$\frac{4}{5}$	2	M1 for $\frac{40}{50}$ oe, A1 cao
4		18	2	M1 for $24 \div 4 \times 3$ oe A1 cao
5		125	2	M1 for complete method using graph eg 50 euros = £42; 42×3 A1 for 122 – 128
6		36 120° 42	1 1 2	B1 cao for Cazda B1 cao for Zusuki M1 for correct method from using 105° e.g. $18 \div 45 \times 105$, “36” $\div 90 \times 105$ or from table, e.g. Cazda “36” $\times 4 - (18+36+48)$ A1 for 42 or ft values from their table.
7		Jane should buy Greens Garden Shop + costs	4	M1 for Suttons: $140 \div 20 (= 7)$ bags of compost needed M1 for $3 \times 3.25 (= 9.75) + 1 \times 2.25 (=12)$ M1 for Greens: cost of 2 bags eg $\times 4.99 (= 9.98)$, $2 \times 5 (=10)$ C1 for correct conclusion from a comparison of correct appropriate figures
8	(a) (b)	25 yes with correct comparative figures	1 3	B1 cao M1 for method to calculate journey time travelling at 30 mph, eg $\frac{20}{30} (=0.66\dots)$ or 40 (mins) M1 (dep) for method to work out arrival time at home, (consistent units), eg 18 10 + “40 mins” (=18 50)

1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
					C1 for yes with comparison of 40 minutes with 50 minutes or stating arrival time home as 18 50 OR M1 for method to calculate speed in order to get home by 1900 $\text{eg } 20 \div \frac{50}{60} (= 24 \text{ mph})$ M1 (dep) for stating speed as 24 mph C1 for yes with supporting calculations showing speed as 24 mph
9	(a)	4×3	12	1	B1 cao
	(b)		5	2	M1 for $4 \times 2 - 3$ A1 cao
10	(a)		37, 41	2	B1 for 37; B1 for 41
	(b)		e.g. added 4; +4	1	B1 for sight of $4n + 13$
	(c)		61	1	B1 cao
	(d)		e.g. even number all numbers in sequence are odd	1	B1 69, 73 are in the sequence or solution of $4n + 13 = 70$ does not give an integer
11		$143.64 \div 19 = 7.56$ $7.56 \times 31 =$	234.36	3	M1 for $143.64 \div 19$ (or 7.56 seen) or 143.64×31 (or 4452.84 seen) M1(dep) for '7.56' $\times 31$ or '4452.84' $\div 19$ $\text{or } 143.64 + 12 \times 7.56$ A1 for 234.36 cao accept 234.36p Alternative method: M1 for $\frac{31}{19}$ (or 1.63(1...) seen) M1 (dep) '1.63...' $\times 143.64$ A1 for 234.36 cao accept 234.36p

1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
12	(a)	Smart phone 838 DVDs $4 \times 16 =$ 64 Lawnmower $57 \div 3 \times 12$ $= 19 \times 12 =$ 228 $838 + 64 + 228 =$ 1130	1130	3	M1 for $57 \div 3 \times 12$ or 228 seen M1 for $838 + 4 \times 16 + '57 \div 3 \times 12'$ A1 cao
	(b)	$4500 \div 500 = 9$ 9×2.40 $= 21.60$ Or $22 \div 2.40 =$ $9.1666\dots$ $9.1666\dots \times 500$ $= 4583.33\dots$ Or £2.40 needs 500 points £24 needs 5000 points 24 – 2.40 needs 4500 points £21.60 needs 4500 points	No with explanation	4	M1 for $4500 \div 500 (= 9)$ (maybe implied by 9 lots of 500 seen) M1 for $'9' \times 2.40$ A1 cao for 21.60 C1 (dep on M1) f.t. for 'No' Decision must be stated and must be attributable from a correct method. for $22 \div 2.40 (= 9.1666)$ Or M1 for $'22 \div 2.40' \times 500$ A1 for answer in range 4583 to 4583.33.... C1 (dep on M1) f.t. for 'No' Decision must be stated and must be attributable from a correct method. Or M1 for $\pounds 24$ (or 2400p) = 5000 M1 for $24 - 2.40$ (or $2400 - 240$) = 4500

1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes																
					A1 cao for 21.60 C1 (dep on M1) f.t. for 'No' Decision must be stated and must be attributable from a correct method.																
13	(a)		$50 < a \leq 60$	1	B1 for correctly identifying the modal class interval e.g. 50 – 60 oe																
	(b)		Polygon	2	B2 for fully correct frequency polygon - points plotted at the midpoint (B1 for all points plotted accurately but not joined with straight line segments or all points plotted accurately and joined with last joined to first to make a polygon or all points at the correct heights and consistently within or at the ends of the intervals and joined (can include joining last to first to make a polygon)																
14		$60 - 29 = 31$ $13 - 8 = 5$ $31 - 10 - 5 = 16$	16	4	M1 for calculation of total Men $60 - 29 (= 31 \text{ Men})$ M1 for calculation for Men who like Italian $13 - 8 (= 5 \text{ Men like Italian})$ M1 for calculation for Men who liked Thai ' $31 - 10 - 5$ ' A1 for 16 OR M1 for a 2-way table or diagram with clear labelling showing at least 3 pieces of the given information correctly placed																
		<table border="1"> <tr> <td></td> <td>Th</td> <td>C</td> <td>It</td> </tr> <tr> <td>W</td> <td>6</td> <td>15</td> <td>8</td> </tr> <tr> <td>M</td> <td>16</td> <td>10</td> <td>5</td> </tr> <tr> <td></td> <td>22</td> <td>25</td> <td>13</td> </tr> </table>		Th	C	It	W	6	15	8	M	16	10	5		22	25	13			
	Th	C	It																		
W	6	15	8																		
M	16	10	5																		
	22	25	13																		

1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
					M1 for correct method for one calculated entry in diagram: Men $60-29(=31)$ or Women and Chinese $29-8-6 (=15)$ or Men and Italian $13-8 (=5)$ M1 for 3 correct entries for Men or 2 correct entries for Thai that with correct arithmetic would lead to 16 (Men and Thai) A1 for 16
15		$(7 + 3 + 3) \times (4 + 3 + 3) - 7 \times 4 = 102$ or $2 \times 7 \times 3 + 2 \times 4 \times 3 + 4 \times 3 \times 3 = 102$	11	4	M1 for a correct method to find the area of one appropriate rectangle M1 for a complete method to find the area of the path M1 (dep on M1) for " 102 " $\div 10$ A1 cao
16	(a) (b)		Evens Certain 4	1 1 2	B1 cao B1 cao M1 for 14 or $\frac{3+7}{n} = \frac{5}{7}$ or any fraction equivalent to $\frac{2}{7}$ or $\frac{5}{7}$ A1 cao
17	(a) (b) (c)		A and C B or E 2	1 1 1	B1 for A and C (no extras) B1 for B or E (or both) (no extras) B1 cao
18			77	3	M1 for $21 \div 6 (=3.5)$ for sf length or $21 \div 6 \times 5 (=17.5)$ M1 for $3 \times "3.5" + 3 \times "3.5" + 21 + 21$ or $17.5+17.5+21+21$ oe A1 cao OR M1 for $21 \div 6 (=3.5)$ for sf length M1 for $(6+5+6+5) \times "3.5"$ or 22×3.5 oe

1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
					A1 cao
19		$x + x + 4 + 3(x + 4) = 51$ $2x + 4 + 3x + 12 = 51$ $5x + 16 = 51$ $5x = 35$ $5x = 35 \div 5$	Ann 7 Beth 11 Cath 33	5	M1 for $x + 4$ or $3(x + 4)$ oe seen M1 for $x + 'x + 4' + '3(x + 4)'$ M1 $x + 'x + 4' + '3(x + 4)' = 51$ A1 for 7 or 11 or 33 C1 for Ann 7, Beth 11, and Cath 33 oe OR M1 for using a value for n , eg $n + 4$ or $4 \times n$ M1 for attempting a trial using n , $n + 4$ and $3(n + 4)$ M1 for at least 2 trials with correct totals for ' n ' A1 for 11 or 33 C1 for Ann 7, Beth 11, and Cath 33 oe
20			A and 3 B and 2 C and 4 D and 1	2	B2 for all 4 correct (B1 for 2 correct)
21		$1 - (0.008 + 0.015)$	0.977	2	M1 for $1 - (0.008 + 0.015)$ oe A1 for 0.977 oe
22	(a)		7.5	3	M1 for $4.5^2 + 6^2 (=56.25)$ M1 for $\sqrt{56.25}$ or $\sqrt{(4.5^2 + 6^2)}$ A1 for 7.5
	(b)		217	4	M1 for use of appropriate trig ratio, e.g. $\tan CAB = \frac{4.5}{6} (= 0.75)$,

1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
					$\sin CAB = \frac{4.5}{7.5} (= 0.6), \cos$ $CAB = \frac{6}{7.5} (= 0.8)$ M1 for inverse trig shown correctly, e.g. $CAB = \tan^{-1} \frac{4.5}{6} (= 0.75),$ $CAB = \sin^{-1} \frac{4.5}{7.5} (= 0.6),$ $CAB = \cos^{-1} \frac{6}{7.5} (= 0.8)$ A1 for 36.8 to 37 (or 53 to 53.2 if identified as <i>ACB</i>) B1ft for bearing $180 + "36.8"$ if "36.8" is not 40–50, e.g. 216.8 to 217
23		$16 \times 7 = 112$ $112 - 87$	25	2	M1 for $6 \times 14.5 (= 87)$ or $7 \times 16 (= 112)$ or $6 \times 1.5 (= 9)$ or $7 \times 1.5 (= 10.5)$ A1 for 25
24			126	3	M1 for $180 - (360 \div 5) (= 108)$ or $(5 - 2) \times 180 \div 5 (= 108)$ M1 for a complete method eg $\frac{360 - "108"}{2}$ or $180 - \frac{"108"}{2}$ A1 cao

GCSE Mathematics

Practice Tests: Set 6

Paper 3F (Calculator)

Time: 1 hour 30 minutes

You should have: Ruler graduated in centimetres and millimetres, protractor, pair of compasses, pen, HB pencil, eraser, calculator. Tracing paper may be used.

Instructions

- Use **black** ink or ball-point pen.
- **Fill in the boxes** at the top of this page with your name, centre number and candidate number.
- Answer **all** questions.
- Answer the questions in the spaces provided – *there may be more space than you need.*
- **Calculators may be used.**
- Diagrams are NOT accurately drawn, unless otherwise indicated.
- You must **show all your working out.**



Information

- The total mark for this paper is 80
- The marks for **each** question are shown in brackets – *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end.

Answer ALL questions.

Write your answers in the spaces provided.

You must write down all the stages in your working.

1. Here is the menu in Sam's cafe.

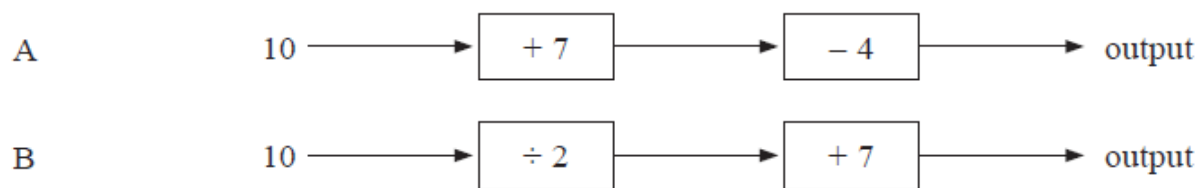
Sam's Cafe	
cup of tea	£1.20
cup of coffee	£1.40
breakfast: Sausage, eggs, bacon	£4.10
special: Sausage, eggs, bacon and toast	£4.50

Sameena buys some cups of coffee.
She only has £10

Work out the greatest number of cups of coffee she can buy.

.....
(Total 2 marks)

2. (a) Here are two number machines, A and B.

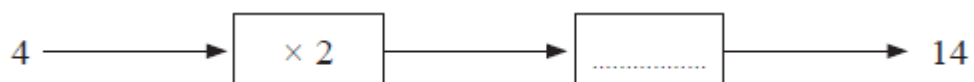


The input for each number machine is 10

Which number machine gives the greater output?
You must show all your working.

(3)

Here is a different number machine.



(b) Complete this number machine.

(1)

(Total 4 marks)

3. Here is a list of numbers.

11 12 13 14 15 16 17 18 19 20

From the list, write down

(a) a factor of 24,

.....
(1)

(b) a multiple of 7,

.....
(1)

(c) a square number.

.....
(1)

(Total 3 marks)

4. Breakfast cereal is put into packets.
1 kg of the cereal is used to fill 20 packets.

(a) Work out the number of **grams** of cereal in each packet.

..... g
(2)

Here are the weights of the ingredients needed to make 100 kg of the cereal.

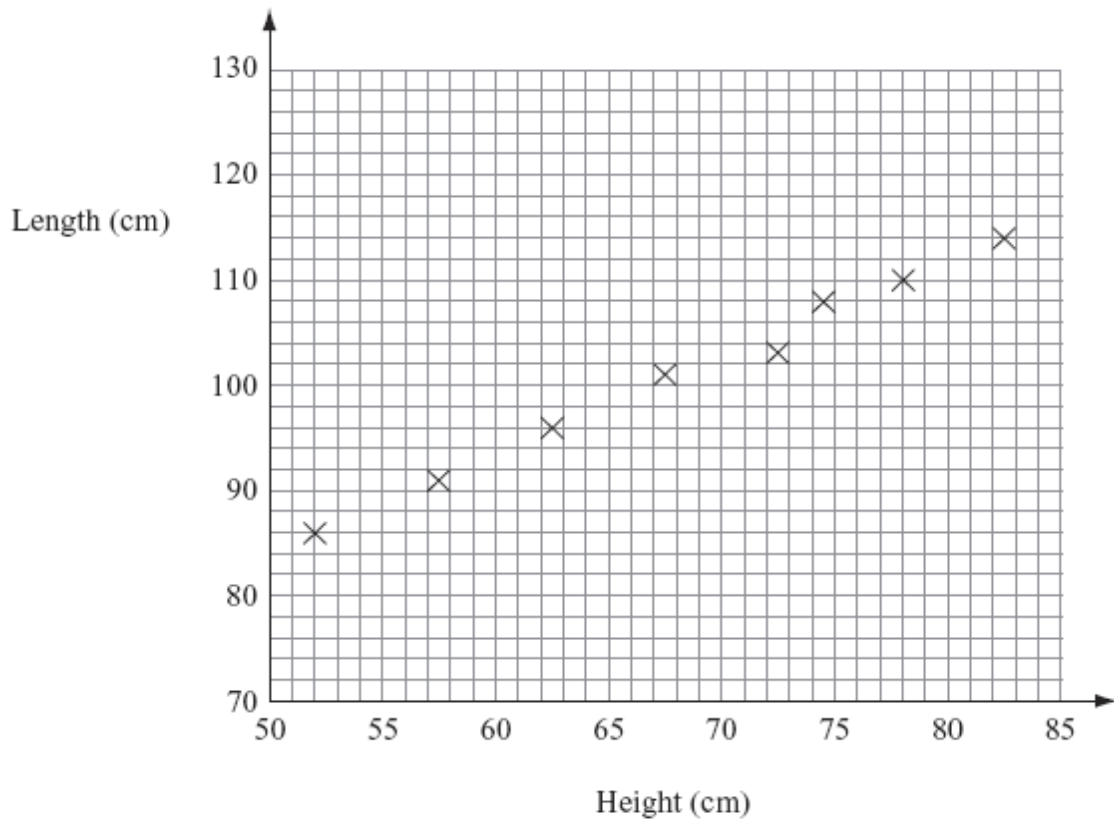
oats	28 kg
wheat flakes	19 kg
barley flakes	15 kg
fruit	19 kg
nuts	8 kg
seeds	4 kg
other	7 kg

(b) Work out the weight of oats needed to fill 5000 packets of the cereal.
Give your answer in kg.

..... kg
(3)

(Total 5 marks)

5. The scatter graph shows information about eight sheep. It shows the height and the length of each sheep.



The table gives the height and the length of two more sheep.

Height (cm)	65	80
Length (cm)	100	110

- (a) On the scatter graph, plot the information from the table. (1)

- (b) Describe the relationship between the height and the length of these sheep.

(1)

The height of a sheep is 76 cm.

- (c) Estimate the length of this sheep.
cm
(2)

(Total 4 marks)

6. When you know the length of an adult's foot (i) in inches, you can use the formula

$$S = 3i - 25$$

to calculate their UK shoe size (S).

When you know an adult's UK shoe size (S), you can use the formula

$$E = S + 33$$

to calculate their European shoe size (E).

Tamsin is buying some shoes as a present for her friend Jane.

Jane is an adult with a foot length of 11 inches.

Tamsin orders some shoes.

The shoes are European size 38

Will the shoes fit Jane?

You must show all your working.

(Total 3 marks)

-
7. There are 165 counters in a bag.

Each counter is either black or white.
There are twice as many black counters as white counters in the bag.

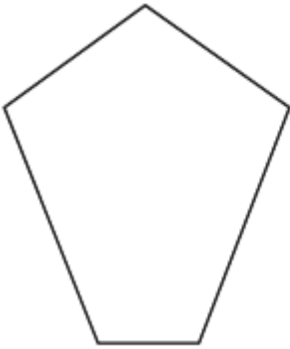
Martine takes 40% of the black counters from the bag.

Work out the ratio of the number of black counters to the number of white counters now in the bag.

Give your ratio in its simplest form.

.....
(Total 4 marks)

8. (a) Write down the special names of each of these polygons.

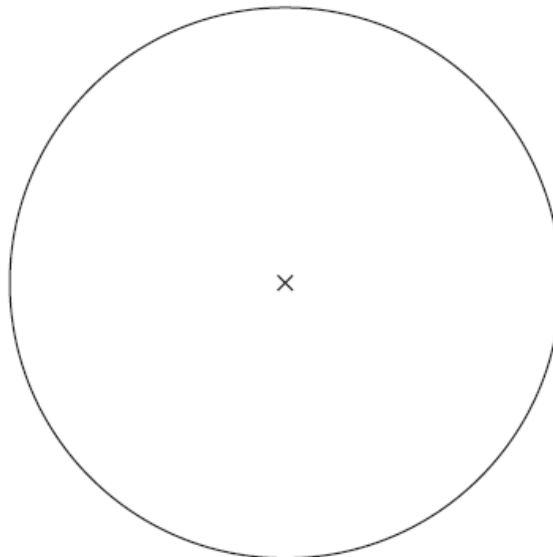


(i)

(ii)

(Total 2 marks)

9. Here is a circle.



The circle has a radius of 4 cm.

(a) Write down the length of the diameter of this circle.

..... cm
(1)

(b) On the diagram, draw a tangent to the circle.

(1)

(Total 2 marks)

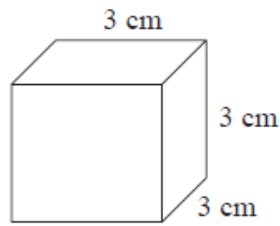
10. Noah got 8 out of 20 in a test.

Write 8 out of 20 as a percentage.

..... %

(Total 2 marks)

11. Here is a solid cube.

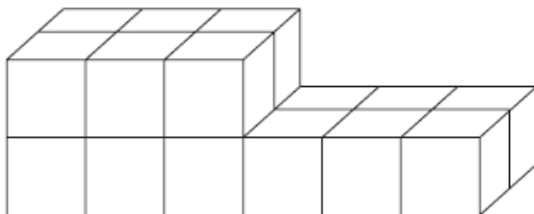


(a) Find the surface area of the cube.

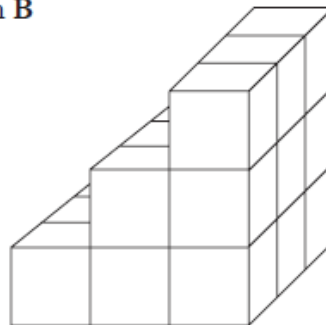
..... cm^2
(2)

Here are two solid prisms made from centimetre cubes.

prism A



prism B

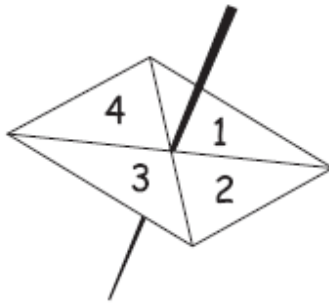


(b) Compare the volume of prism A with the volume of prism B.

(3)

(Total 5 marks)

12. Here is a four-sided spinner.
The spinner is biased.



The table shows the probabilities that the spinner will land on 1 or on 3

Number	1	2	3	4
Probability	0.2		0.1	

The probability that the spinner will land on 2 is the same as the probability that the spinner will land on 4

- (a) Work out the probability that the spinner will land on 4

.....
(3)

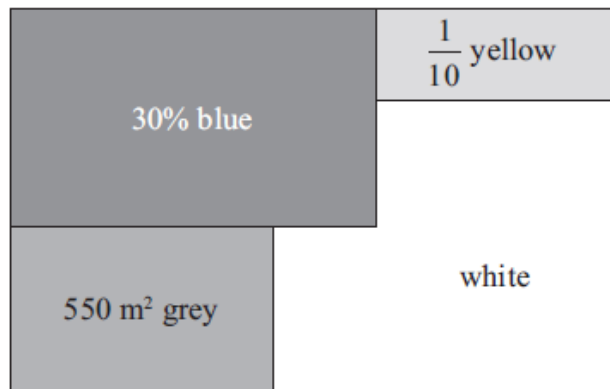
Shunya is going to spin the spinner 200 times.

- (b) Work out an estimate for the number of times the spinner will land on 3

.....
(2)

(Total 5 marks)

13. Here is a shape.



The total area of the shape is 1640 m².

30% of the shape is blue.

$\frac{1}{10}$ of the shape is yellow.

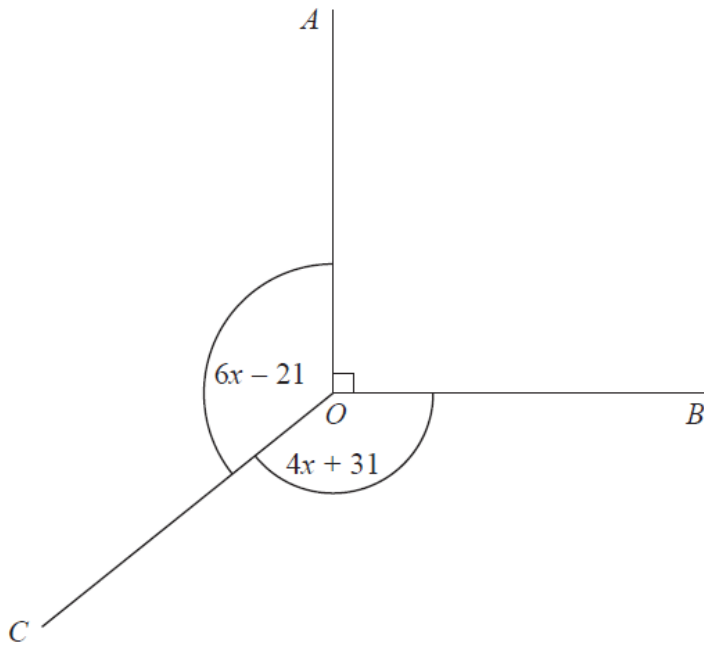
550 m² of the shape is grey. The rest of the shape is white.

Is the white area more than 400 m²?

(Total 5 marks)

14.

Diagram **NOT**
accurately drawn



In the diagram, all angles are in degrees.

Angle AOB is a right angle.

Angle $AOC =$ Angle BOC .

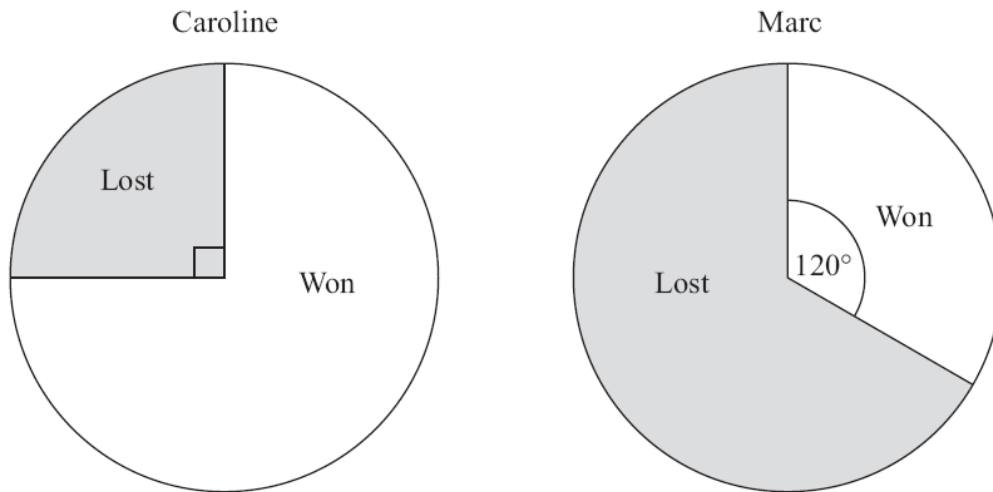
Work out the value of x .

.....
(Total 3 marks)

15. Caroline and Marc are in a darts team.

The pie charts show information about the number of games Caroline and Marc each won last year.

They also show information about the number of games Caroline and Marc each lost last year.



Caroline played 52 games.

Marc played 150 games.

Marc won more games than Caroline.

How many more?

.....
(Total 3 marks)

16. Anna is making crumble.

She makes the crumble from flour, sugar and butter.
Anna needs twice as much butter as sugar.
She needs one and a half times as much flour as butter.

Anna is going to make 900 g of crumble.

Calculate the amount of sugar Anna needs.

.....g

(Total 4 marks)

17. Toby invested £4500 for 2 years in a savings account.
He was paid 4% per annum compound interest.

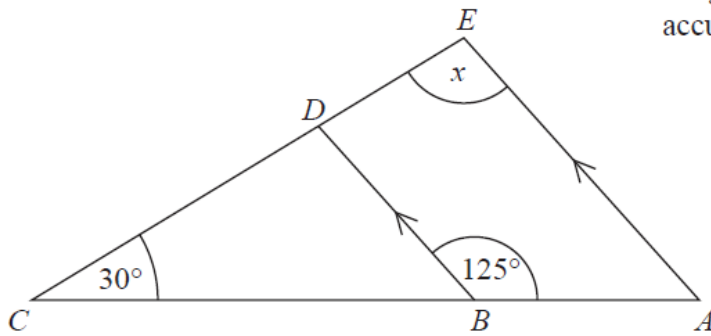
How much did Toby have in his savings account after 2 years?

£

(Total 3 marks)

18.

Diagram **NOT**
accurately drawn



ABC and EDC are straight lines.

AE and BD are parallel.

Angle $ABD = 125^\circ$

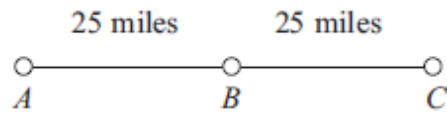
Angle $BCD = 30^\circ$

Work out the size of the angle marked x .

Give reasons for your answer.

(Total 4 marks)

19.



A , B and C are 3 service stations on a motorway.

$AB = 25$ miles

$BC = 25$ miles

Aysha drives along the motorway from A to C .

Aysha drives at an average speed of 50 mph from A to B .

She drives at an average speed of 60 mph from B to C .

Work out the difference in the time Aysha takes to drive from A to B and the time Aysha takes to drive from B to C .

Give your answer in minutes.

..... minutes

(Total 3 marks)

20. Solve the simultaneous equations

$$2x - y = 13$$

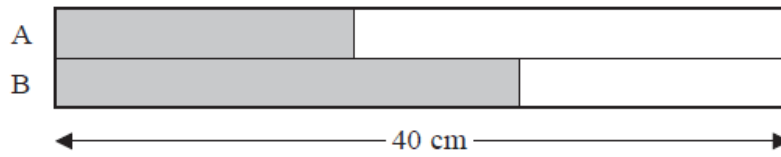
$$x - 2y = 11$$

$x = \dots\dots\dots$

$y = \dots\dots\dots$

(Total 3 marks)

21. Here is a rectangle.



The rectangle has been divided into two strips, A and B.
The strips have the same width.

$\frac{2}{5}$ of strip A is shaded.

$\frac{5}{8}$ of strip B is shaded.

The length of the rectangle is 40 cm.

What fraction of the rectangle is **not** shaded?

.....
(Total 4 marks)

22. Make w the subject of the formula $P = \frac{w-3}{2}$

.....
(Total 2 marks)

23. (a) Simplify fully $\frac{n^7 \times n^3}{n^6}$

.....
(2)

(b) Factorise $5y - 15$

.....
(1)

(c) Factorise fully $18ab + 27ab^2$

.....
(2)

(Total 7 marks)

TOTAL 80 marks

1MA1 Practice papers Set 6: Paper 3F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
1	$10 \div 1.4 = 7.142857143..$	7	2	M1 for $10 \div 1.4$ or 7.1(42857...) or 7 lots of 1.4 A1 cao
2	(a) A $10 + 7 - 4 = 13$ B $10 \div 2 + 7 = 12$	Machine A with supportive working	3	M1 for $17 - 4 (= 13)$ or $5 + 7 (= 12)$ A1 for 13 and 12 C1ft (dep on M1 and two suitable answers to compare) Machine A gives the greater answer
	(b)	+ 6 or $\times 1.75$	1	B1 for + 6 or $\times 1.75$
3	(a)	12	1	B1 cao
	(b)	14	1	B1 cao
	(c)	16	1	B1 cao
4	(a)	50	2	M1 for $1 \text{ kg} = 1000\text{g}$ or $1 \div 20 (=0.05)$ A1 cao
	(b)	70	3	M1 for $5000/20 (= 250)$ or for $250/100 (= 2.5)$ or for $5000/2000 (= 2.5)$ M1 for $28 \times "2.5"$ A1 cao Note: calculations may be carried out in kg or in g.
5	$S = 3 \times 11 - 25$ $S = 8$ $E = 33 + 8$ $E = 41$ Or $38 = S + 33$ $S = 5$ $S = 3 \times 11 - 25$ $S = 8$	No, the shoes won't fit	3	M1 $S = 3 \times 11 - 25$ M1 $E = 33 + "8"$ C1 (dep on M1) 41 and 'the shoes will not fit' Or M1 $38 = S + 33$ or $S = 38 - 33$ or $S = 5$ M1 $S = 3 \times 11 - 25$ or $S = 33 - 25$ or $S = 8$ C1 (dep on M1) 8 and 5 and 'the shoes will not fit'
6	(a)	(65, 100), (80, 110) plotted	1	B1 for plotting both points (65, 100), (80, 110) correctly (tolerance one square); ignore any additional plots given.
	(b)	positive (correlation)	1	B1 for positive (correlation) or length increases with height oe
	(c)	105 – 110	2	M1 for a single line segment with positive gradient that could be used as a line of best fit or a vertical line from 76 A1 for given answer in the range 105 – 110

1MA1 Practice papers Set 6: Paper 3F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
7		6 : 5	4	<p>M1 for $\frac{2}{3} \times 165$ oe (= 110) [black counters]</p> <p>M1 (dep M1) for $\frac{40}{100} \times "110"$ oe (=44)</p> <p>M1 (dep M2) for (110 – “44”) : 55 or 66 : 55 or a reversed ratio</p> <p>A1 cao</p> <p>OR</p> <p>M1 for 2 : 1; M1 for $2 \times "1 - 0.4"$ or 1.2</p> <p>M1 (dep M2) for “1.2” : 1; A1 cao</p> <p>OR</p> <p>M1 for correct method to find proportion of black counters left in the bag, e.g. $\frac{60}{100} \times \frac{2}{3}$ (= $\frac{120}{300}$)</p> <p>M1 for correct method to find proportion of white counters in the bag ie $\frac{1}{3}$ oe</p> <p>M1 (dep M2) for correct method to find ratio after eg “$\frac{120}{300}$” : “$\frac{1}{3}$”</p> <p>A1 cao</p>
8		pentagon hexagon	2	B1 B1
9	(a) (b)	8 tangent drawn		B1 cao B1 any tangent drawn
10		$(8 \div 20) \times 100$ 40	2	<p>M1 for $(8 \div 20) \times 100$ or $\frac{40}{100}$ or</p> <p>$\frac{8}{20} = \frac{8 \times 5}{20 \times 5}$</p> <p>A1 cao</p>
11	(a) (b)	54 Both prisms have the same volume (= 18 cm ³)	2 3	<p>M1 for a complete method, e.g. $3 \times 3 \times 6$</p> <p>A1 cao</p> <p>M1 for a method to find the volume of one of the prisms</p> <p>A1 for prism A = 18 and prism B = 18</p>

1MA1 Practice papers Set 6: Paper 3F (Regular) mark scheme – Version 1.0

Question		Working	Answer	Mark	Notes
					C1 ft (dep on M1) for a correct comparison of their two stated volumes
12	(a)	$1 - 0.2 - 0.1$ $0.7 \div 2$	0.35	3	M1 for correctly using total probability 1 or 100% if percentages used M1 (dep) for complete correct method to complete the solution A1 for 0.35 or 35% oe
	(b)	0.1×200	20	2	M1 for 0.1×200 A1 cao
13		$1640 \times \frac{30}{100} = 492$ $1640 \div 10 = 164$ $492 + 164 + 550 = 1206$ $1640 - 1206 = 434$ Or $1640 \times \frac{40}{100} = 656,$ $656 + 550 = 1206$ $1640 - 1206 = 434$	Yes	5	M1 for attempting to find the area of one section (blue or yellow) M1 for attempting to find the area of the second section (yellow or blue) or award M2 for attempt to find the combined area of blue and yellow) M1 for attempting to find the total area of three sections or four sections using white as 400 or subtracting the 3 sections from 1640 A1 1206 or 434 or 1606 C1 dep on at least M1 for correct conclusion based upon their calculations relating their white area to 400 or “1206” to 1240 or “1606” to 1640
14			26	3	M1 for $(360 - 90) \div 2 (= 135)$ M1 for $4x + 31 = “135”$ or $6x - 21 = “135”$ A1 cao OR M1 for forming an appropriate equation eg $4x + 31 = 6x - 21$ or $6x - 21 + 4x + 31 + 90 = 360$ oe M1 (dep) for isolating terms in x and number terms A1 cao

1MA1 Practice papers Set 6: Paper 3F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
15		11	3	M1 for $52 \times \frac{3}{4}$ (=39) oe or $\frac{120}{360} \times 15$ (= 50) oe M1 for $52 \times \frac{3}{4}$ (=39) oe and $\frac{120}{360} \times 15$ (= 50) oe A1 cao
16	f:b:s = 3:2:1 $900 \div 6$ OR $s + 2s + 3s = 900$ $6s = 900$ $s = 900 \div 6$ OR e.g. 150, 100, 50 (=300) 300, 200, 100 (=600) 450, 300, <u>150</u> (=900)	150	4	M1 for b:s = 2:1 oe or $b = 2s$ or $f = 3s$ or $f = 1.5b$ oe M1 for f:b:s = 3:2:1 or $b = 2s$ and $f = 3s$ oe M1 for $900 \div '6'$ or $s + b + f (= 900)$ A1 cao OR M1 for s,2s,3s oe used in algebraic method condone one error M1 for reducing ' $s + 2s + 3s$ ' to the form $as = 900$ M1 for $900 \div '6'$ A1 cao OR M1 for trial and improvement method using butter = $2 \times$ sugar or flour = $1.5 \times$ butter oe M1 for an attempt to use butter = $2 \times$ sugar and flour = $1.5 \times$ butter, oe for one trial, eg 150, 100, 50 M1 for an attempt to use butter = $2 \times$ sugar and flour = $1.5 \times$ butter oe for another trial A1 cao
17	4500×1.04^2	4867.20	3	M1 for 4500×1.04 or for $4500 + 0.04 \times 4500$ or for 4680 or 180 or 360 or 4860 M1 (dep) '4680' $\times 1.04$ or for '4680' + $0.04 \times$ '4680' A1 for 4867.2(0) cao (If correct answer seen then ignore any extra years) Alternative method M2 for 4500×1.04^2 or 4500×1.04^3 A1 for 4867.2(0) cao [SC: 367.2(0) seen B2]

1MA1 Practice papers Set 6: Paper 3F (Regular) mark scheme – Version 1.0

Question	Working	Answer	Mark	Notes
20	$4x - 2y = 26$ $x - 2y = 11$ $3x = 15$ $2x - y = 13$ $2x - 4y = 22$ $3y = -9$	$x = 5$ $y = -3$	3	M1 for correct process to eliminate one variable (condone one arithmetic error) M1 (dep) for substituting found value in one of the equations or appropriate method after starting again (condone one arithmetic error) A1 for $x = 5$ and $y = -3$
21		$\frac{39}{80}$	4	M1 for a correct method to find $\frac{2}{5}$ of 40; eg. $40 \div 5 \times 2 (= 16)$ or for a correct method to find $\frac{5}{8}$ of 40; eg. $40 \div 8 \times 5 (= 25)$ M1 for a correct method to find $\frac{2}{5}$ of 40 and $\frac{5}{8}$ of 40 M1 (dep on M1) for $80 - "16" - "25" (= 39)$ or $\frac{"16" + "25"}{80} (= \frac{41}{80})$ A1 $\frac{39}{80}$ oe OR M1 for $1 - \frac{2}{5} (= \frac{3}{5})$ and $1 - \frac{5}{8} (= \frac{3}{8})$ M1 for a correct method to find $\frac{3}{5}$ of 40; eg. $40 \div 5 \times 3 (= 24)$ or for a correct method to find $\frac{3}{8}$ of 40; eg. $40 \div 8 \times 3 (= 15)$ M1 (dep on M1) for $"24" + "15" (= 39)$ A1 $\frac{39}{80}$ oe
22		$w = 2P + 3$	2	M1 for a clear intention to multiply both sides by 2 or add $\frac{3}{2}$ to both sides as a first step A1 for $w = 2P + 3$ oe
23	(a)	n^4	2	M1 for $\frac{n^{10}}{n^6}$ oe or $\frac{n^7}{n^3}$ oe or $n \times n^3$ oe A1 cao
	(b)	$3x^2 + 4x$	2	B2 for $3x^2 + 4x$ or $x(3x + 4)$ (B1 for $x^2 - 2x$ or $2x^2 + 6x$ or $3x^2 + nx$ or $px^2 + 4x$)
	(c)	$9ab(2 + 3b)$	2	B2 for $9ab(2 + 3b)$ (B1 for $9a(2b + 3b^2)$ or $9b(2a + 3ab)$ or $ab(18 + 27b)$ or $3ab(6 + 9b)$ or $3a(6b + 9b^2)$

1MA1 Practice papers Set 6: Paper 3F (Regular) mark scheme – Version 1.0

1MA1 Practice papers Set 6: Paper 3F (Regular) mark scheme – Version 1.0					
Question		Working	Answer	Mark	Notes
					or $3b(6a + 9ab)$ or $9ab$ (a two term algebraic expression))