



Year 10 Summer Revision Work

Pack C Foundation (sets 4 & 5)

This pack contains:

- List of all foundation topics and Hegarty Maths 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

Topics	Clip Number	R	Α	G
Ordering positive integers	13, 14			
Ordering negative integers	37			
Ordering decimals	45, 46			
Ordering fractions	60			
Addition and subtraction of positive integers	18, 19, 20			
Multiplication and division of positive integers	21, 22, 23, 144, 145			
Addition and subtraction of negative integers	38, 39, 40, 41			
Multiplication and division of negative numbers	42, 43			
Addition and subtraction of decimals	47			
Multiplication and division of decimals	48, 49, 50, 51, 135, 136			
Addition and subtraction of fractions	65, 66			
Multiplication and division of fractions	67, 68, 69, 70, 71, 72			
Place value: multiplying and dividing by 10	15, 16			
Order of operations	24, 44, 120, 150			
Prime numbers, prime factorisation	28, 29, 30			
Factors, multiples, HCF and LCM	27, 31, 32, 33, 34, 35, 36			
Powers and roots	99, 100, 101			
Using standard form	121, 122, 123, 124			
Calculating with standard form	125, 126, 127, 128			
Converting decimals to/from fractions	52, 73, 74, 149			
Converting percentages to/from fractions	75, 76, 82, 149			
Converting percentages to/from decimals	55, 83			
Simplifying fractions	59, 61			
Mixed numbers and improper fractions	63, 64			
Fractions of amounts	62, 77			
Increasing/decreasing by fractions	78, 79			
Fraction problems	80			
Percentages of amounts	84, 85, 86, 87			
Percentage increase/decrease	88, 89, 90			
Percentage change	97			
Reverse percentages	96			
Simple interest	93			
Percentage problems	98			
Rounding	17, 56, 134			
Rounding to significant figures	130			
Estimating answers	129, 131, 132, 133			
Working with money	747, 748, 749, 750, 751			
Money problems	752, 753, 754			
Financial statements	757			
Income and rates of pay	755, 756			
Protit and loss	759, 760, 761, 762			
Best buys	763, 764, 765, 766, 767			

Algebra

Topics	Clip Number	R	Α	G
Algebraic expressions	151, 152, 153			
Collecting like terms	156, 157			
Multiplying and dividing algebra	158, 159			
Substitution	155, 780, 781			
Algebra terminology	154			
Expanding brackets	160, 161			
Factorising expressions	167, 168, 169, 170, 171			
Index laws	173, 174			
Changing the subject	280, 281, 282, 283, 284			
Coordinates	199			
Midpoints	200			
Plotting straight line graphs	205, 206, 207			
Gradient	201, 202			
Distance-time graphs	874, 875			
Sketch quadratic graphs	251, 257			
Linear equations	176, 177, 178, 179, 180,			
	181, 182, 183, 188, 189			
Linear equations on graphs	217			
Quadratic expressions	222			
Linear sequences	196, 197, 198			
Other sequences	261			

Ratio and proportion

Topics	Clip Number	R	Α	G
Scale diagrams	864, 865, 866, 867, 868, 869			
Simplifying ratios	328, 329, 331			
Dividing in a ratio	332, 333, 334			
Fractions and ratio	330			
Direct proportion	339, 340, 341, 343			
Inverse proportion	342, 346			
Proportion graphs	348			
Recipes	739, 740, 741, 742			

Geometry and measures

Topics	Clip Number		Α	G
Geometric notation	456			
Points and lines	821			
Properties of 2D shapes	822, 823, 824, 825, 826,			
	827, 828			
Angle on a line	477, 478			
Complementary angles	815			
Angles around a point	812, 813, 814, 479, 480			
Angles on parallel lines	481, 482, 483			
Angles in a triangle	484, 485, 486, 487			
Angles in polygons	560, 561, 562, 563, 564			
Translations	637, 638			
Reflections	639, 640, 641			
Enlargements	642, 643			
Rotations	648, 649			
Describing transformations	650, 651, 652, 653, 654			
Congruence	680, 681			
Properties of 3D shapes	829, 830, 831, 832			
Nets of 3D shapes	833, 834, 835, 836			
Metric units	691			
Units of measure: Length	692, 693, 694			
Units of measure: Mass	695, 696, 697			
Units of measure: Volume/capacity	698, 699, 702, 703, 704			
Units of measure: Time	709, 710, 711			
Units of measure: Area	700, 701			
Imperial units	705, 706			
Currency conversion	707, 708			
Conversion graphs	712, 713			
Compound units: Speed	716, 717, 718, 719, 720, 724			
Angles: Recognising and Estimating	455, 457			
Angles: Measuring and Drawing	458, 459, 460, 461			
Bearings	492, 493, 494, 495			
Calculating perimeter	549, 550, 551, 552			
Calculating area	554, 555, 556, 557, 558, 559			
Circles	592			
Circumference	534, 535, 536			
Circle area	539, 540, 541			
Surface area	584, 585, 586			
Volume of cuboids	568, 569			
Volume of prisms and cylinders	570, 571, 572, 573, 574, 575			
Similar shapes	608, 609, 610, 611		1	

Probability

Topics	Clip Number	R	Α	G
Probability scale	349, 350			
Probability of single events	351, 352, 353, 354			
Experimental probability	355, 356			
Multiple event probability	358, 359, 360			
Listing elements in a set	370, 371			
Vonn diagrams	372, 373, 374, 375, 376,			
	377, 378, 379, 380			
Probability from Venn diagrams	383, 384			
Frequency trees	368, 369			
Listing systematically	670			

Statistics

Topics	Clip Number	R	Α	G
Collecting data, frequency tables	401, 402, 403			
Two-way tables	422, 423, 424			
Bar charts	425			
Pictograms	426			
Pie charts	427, 428, 429			
Stem and leaf diagrams	430, 431, 432, 433			
Mode	404, 415			
Mean	405, 406, 407, 408, 417			
Median	409, 416			
Range	410, 414			
Choosing averages	413			
Averages problems	419, 420			
Scatter graphs	453, 454			

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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.

(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?

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)

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

2 marks)			(ii)		(i)	
				s in order of size. est number.	Write these number Start with the small	(a)
	145	98	709	835	358	
(1)						
				s in order of size. est number.	Write these number Start with the small	(b)
	-8	-1	7	-5	4	
(1)						
				s in order of size. est number.	Write these number Start with the small	(c)
	0.5	$\frac{3}{4}$	40%	0.2	$\frac{1}{4}$	
(2)						
marks)	(Total 4					

(b) Simplify 5y - 2y

.....(1)

(c) Simplify $2 \times 4p$

.....

(1)

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 (×), the probability that the spinner will land on an odd number.



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



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

••••••

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

Ticket prices

Adult ticket £12 Child ticket £7 Senior ticket £8

Family ticket (2 adult tickets and 2 child tickets) £30

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 $\pounds 20$ notes.

How much change should he get?

£.....

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.

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.

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

%	
(1)	
(Total 3 marks)	



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

/		
(•••••, ••	 •••••••

- (ii) On the grid, mark with a cross (\times) the point with coordinates (5, 2). Label this point *B*.
- (*b*) On the grid, draw the line with equation y = 3.

(2)

(1)

12. Which of these is the largest fraction?

7	3	29
	—	
10	5	40

You must show clearly how you got your answer.

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

Shortcakes Makes 12 shortcakes					
50 g	of sugar				
200 g	of butter				
200 g	of flour				
10 m <i>l</i>	of milk				

Liz makes some shortcakes. She uses 25 m*l* of milk.

(a) How many shortcakes does Liz make?

Robert has 500 g of sugar 1000 g of butter 1000 g of flour 500 m*l* of milk

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

.....

(2)

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.

£.....

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?

.....

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)



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

(1)

17.



(b) Describe fully the single transformation that maps shape \mathbf{Q} onto shape \mathbf{R} .

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 (1) (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.

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



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*.

22. *PQRS* is a square.



All measurements are in centimetres.

Show that the perimeter of the square is 10 cm.

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.



	1MA1 Practice papers Set 6: Paper 1F (Regular) mark scheme – Version 1.0					
Que	stion	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)		$ \begin{array}{r} -8 & -5 & -1 \\ 4 & 7 \end{array} $	1	B1 cao	
	(c)	(0.2, 0.25, 0.4, 0.5, 0.75)	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2	M1 for two correct conversions into the same form	
		$\left(\frac{4}{20}, \frac{5}{20}, \frac{8}{20}, \frac{10}{20}, \frac{15}{20}\right)$	4		A1 cao	
		(20%, 25%, 40%, 50%, 75%)				
5	(a)		4x	1	B1 cao	
	(b)		3у	1	B1 cao	
	(c)		8 <i>p</i>	1	B1 cao	
6	(a)		mark at 1	1	B1 for \times within the overlay (within 1 cm of 1)	
	(b)		mark at $\frac{1}{4}$	1	B1 for \times 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 the10th term (condone one arithmetic error)	
					A1 cao	

QuestionWorkingAnswerMarkNotes0R0RMI for $5n$ MI for $5n$ MI for $5x10 + 1$ oe or $5n$. AI cao8F+C+S154M2 for $30 + 7 + 8 = 45$ $3x20 - 45 = 15$ 154M2 for $30 + 7 + 8 = 45$ $12 \times 2 + 7 \times 3 + 8 (= 53)$ $12 \times 2 + 7 \times 2 (= 38)$)91.2m or 120 cm 1.2m or 120 cm 4BI for evidence of using 1 m = 100 MI for subtracting the four post widths from the total length eg $4 - 4 \times 10$ ($= 360$) or "400" - 4 $10 \text{ or } 3x + 40 = 400$ (ce)10(a)Correct explanation2MI for dividing their total space fou by 3 or subtracting 40 from both sid of $3x + 40 = 400$ C1 for correct conclusion for 1.2m or 120 cm 10(a)Correct explanation2MI for dividing their total space fou by 3 or subtracting 40 from both sid of $3x + 40 = 400$ C2 for correct and 4 min to total length eg $4 - 4 \times 10$ ($= 360$) or "400" - 4 10 or $3x + 40 = 400$ C1 for correct conclusion for 1.2m or 120 cm with supported working10(a)Correct explanation2(b)751B1 cao11(a)(i) (a)(i)($-2, -3$)2B1 cao(b)y = 31B1 for correct line (at least 2 cm		1MA1 Practice papers Set 6: Paper 1F (Regular) mark scheme – Version 1.0					
OR MI for $5n$ 8 $F+C+S$ 15 4 M2 for $30+7+8 = 45$ $30+7+8 = 45$ $3\times 20-45 = 15$ M1 (dep on at least M1) for " $20 \times -$ " $45"$ " 9 1.2m or 120 cm 1.2m or 120 cm 4 B1 for evidence of using 1 m = 100 9 1.2m or 120 cm 4 B1 for evidence of using 1 m = 100 M1 for Jacobia M1 for or $3+40 = 400$ (cc) M1 for orbit subtracting the four post widths from the total length eg 4 4×10 (-360) or " 400^{-4} 10 or $3 + 40 = 400$ (cc) 10 (a) Correct explanation 2 M1 for orbit subtracting 40 from both sid of $3x + 40 = 400$ (cc) 10 (a) Correct explanation 2 M1 for withing out area of triangle (=6) and area of rectangle (=12) or 1 dividing rectangle into eighths or of comparable areas A1 for explaining that that $24 \div 6$ is or $\frac{2}{8} = \frac{1}{4}$ or that $42 \times 42 = 44$ from symmetry of shape (b) 75 1 B1 cao (a) (a) Cross at (5, 2) B1 (b) y = 3 1 B1 for correct line (at least 2 cm	Que	stion	Working	Answer	Mark	Notes	
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8 F+C+S 15 4 M2 for $30 + 7 + 8$ (= 45) (M1 for $12 \times 2 + 7 \times 3 + 8$ (= 53) $12 \times 2 + 7 \times 2$ (= 38)) M1 (dep on at least M1) for "20 × - "45" or "20 × 3" - "53" A1 cao 9 1.2 m or 120 cm 4 B1 for evidence of using 1 m = 100 M1 for subtracting the four post widths from the total length eg 4 - 4 × 10 (= 360) or "400" - 4 10 or $3x + 40 = 400$ (ce) M1 for dividing their total space for by 3 or subtracting 40 from both sid of $3x + 40 = 400$ 10 (a) Correct explanation 2 M1 for working out area of triangle (=6) and area of rectangle (=24) or 1 dividing rectangle into eighths or ot comparable areas M1 for working out area of triangle (=6) and area of rectangle (=24) or 1 dividing rectangle into eighths or ot comparable areas 10 (a) Correct explanation 2 M1 for working out area of triangle (=6) and area of rectangle (=24) or 1 dividing rectangle into eighths or ot comparable areas 11 (a)(i) (-2, -3) (2) 2 B1 cao 11 (a)(i) (-2, -3) (2) 2 B1 cao 10 9 3 1 B1 for correct line (at least 2 cm emprine the merici)						A1 cao	
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91.2 m or 120 cm4B1 for evidence of using 1 m = 100 M1 for subtracting the four post widths from the total length $cg 4 - 4 \times 10 (= 360)$ or "400" - 4 10 or $3x + 40 = 400$ (ce) M1 for dividing their total space fou by 3 or subtracting 40 from both sid of $3x + 40 = 400$ C1 for correct conclusion for 1.2 m on 120 cm with supported working10(a)Correct explanation2 M1 for working out area of triangle (=6) and area of rectangle (=24) or 1 dividing rectangle into eighths or of comparable areas A1 for explaining that that $24 \div 6$ is or $\frac{2}{8} = \frac{1}{4}$ or that $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ or that $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ from symmetry of shape11(a)(i)(-2, -3)2B1 cao11(a)(i)(-2, -3)2B1 cao(b)y = 31B1 for correct line (at least 2 cm erroming the unit)						or "20 × 3" – "53"	
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Image: the second system of the system of						widths from the total length	
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(b)751B1 cao11(a)(i) $(-2, -3)$ 2B1 cao(a)(ii) $Cross at (5, 2)$ B1B1(b) $y = 3$ 1B1 for correct line (at least 2 cm comparing the particip)						A1 for explaining that that $24 \div 6$ is 4 or $\frac{2}{8} = \frac{1}{4}$	
(b) 75 1 B1 cao 11 (a)(i) $(-2, -3)$ 2 B1 cao (a)(ii) Cross at (5, 2) B1 B1 (b) $y = 3$ 1 B1 for correct line (at least 2 cm comparing the y errip)						or that $\frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$ from symmetry of shape	
11(a)(i) $(-2, -3)$ 2B1 cao(a)(ii)(a)(ii)Cross at (5, 2)B1(b) $y = 3$ 1B1 for correct line (at least 2 cm		(b)		75	1	B1 cao	
(a)(ii)Cross at (5, 2)B1(b) $y = 3$ 1B1 for correct line (at least 2 cm cmenning the u errip)	11	(a)(i)		(-2,-3)	2	B1 cao	
(b) $y = 3$ 1 B1 for correct line (at least 2 cm grapping the y grip)		(a)(ii)		Cross at (5, 2)		B1	
spanning the y axis)		(b)		<i>y</i> = 3	1	B1 for correct line (at least 2 cm spanning the <i>y</i> axis)	

1MA1 Practice papers Set 6: Paper 1F (Regular) mark scheme – Version 1.0					
Que	stion	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 ÷ 10 or 2.5 seen or 10 ÷ 25 or 0.4 seen or 12 + 12 + 6 oe or a complete method, e.g. 25 × 12 ÷ 10 oe A1 cao
	(b)	1000 ÷ 200 × 12	60	2	M1 for 500 ÷ 50 or 1000 ÷ 200 or 500 ÷ 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 × 7000 (= 1400) or 1.2 × 7000 (= 8400) oe M1 for 7000 + "1400" - 3000 (= 5400) oe M1 for "5400" ÷ 6 A1 cao
15	<u> </u>	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					
Que	stion	Working	Answer	Mark	Notes	
		9:00 am + 120 minutes			A1 for 11:00 (am) or 11(am) or 11 o'clock	
		OR			OR	
		Acton after 24, 48, 1h 12m Barton after 20, 40, 1 h			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	
		I CM is 2 hours			after 9 am in lists)	
		9:00 am + 2 hours			A1 for correct times in each list up to and including 11:00	
		OR			A1 for 11:00 (am) or	
		Times from 9:00 am when each service			OR	
		leaves the bus station			M1 for correct method to write 20 and 24 in terms of their prime factors 2, 2,	
		Acton at 9:24, 9: 48, 10:12			5 and 2, 2, 2, 3 (condone one error)	
		Barton at 9:20, 9:			A1 identify 120 as LCM A1 for $11:00$ (am) or	
		40, 10:00			11(am) or 11 o'clock	
		UK $20 - 2 \times 2 \times 5$				
		$20 - 2 \times 2 \times 3$				
		$2 + - 2 \times 2 \times 2 \times 5 =$				
		120				
16	(a)		9.4	1	B1 cao	
	(b)		Diagram or chart	4	B1 for a key, or suitable labels, to identify regular yoghurt and low fat yoghurt.	
					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	
					B1 for correct heights for regular yoghurt or low fat yoghurt, dependent on a linear scale	
					C1 for a fully correct diagram or chart to include labels for protein, carbohydrate and fat and vertical axis correctly scaled and labelled	

17	(a)		Shape with	1	B1 for correct shape in correct
			vertices at $(1, 3)$ (0)		position
			(-1, 3), (0, 6),		
			(2, 6), (1,		
			3)		
	(b)		Rotation	3	B1 rotation
			centre (0,0)		B1 (centre) (0,0)
			90° anticlockwi		B1 90° anticlockwise or 270° clockwise
			se		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	2	M1 for converting all numbers to same
			27.3×10^{-3}		form with at least one conversion
			2.73×10^{3}		A 1 for fully correct order with correct
			273×10^2		numbers in any correct form
					(SC B1 if one number incorrectly
					placed or all 4 numbers listed in reverse order)
19	(a)		5	2	5
17	(u)		$\frac{3}{8}$	2	B1 for $\frac{5}{8}$ correct for 1 st counter
			$\frac{5}{8}, \frac{3}{8}, \frac{5}{8}$		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		graph	3	(Table of values)
	x -2 -1 0 1 2 3 y 6 5 4 3 2 1	_		M1 for at least 2 correct attempts to find points by substituting values of x
				M1 ft for plotting at least 2 of their points
				(any points plotted from their table must be correct)
				A1 for correct line between $x = -2$ and $x = 5$
				or
				(No table of values)
				M2 for at least 2 correct points (and no incorrect points) plotted
				or line segment of $x + y = 4$ drawn
				(M1 for at least 3 correct points plotted with no more than 2 incorrect)
				A1 for correct line between $x = -2$ and $x = 5$
				or
				(Use of $y = \mathbf{m}x + \mathbf{c}$)
				M2 for at least 2 correct points (and no
				incorrect points) plotted
				(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)
				A1 for correct line between $x = -2$ and $x = 5$
21		9	4	M1 for method to find area of one rectangle,
				eg 15 × 8 (= 120) or 15 × 11 (= 165)
				M1 (dep) for subtracting from/by given area,
				eg (138 – "120") (= 18) or "165" – 138 (= 27)
				M1 for final step from complete method shown,
				eg 15 – "18"÷ 3 or "27" ÷ 3
				A1 cao
				OR

			M1 for a correct expression for the area of one rectangle, eg $(8 + 3) \times (15 - x)$ or $8 \times x$ M1 (dep) for a correct equation eg $(8 + 3) \times (15 - x) + 8 \times x = 138$ M1 for correct method to isolate <i>x</i> , eg 3x = 27 A1 cao	
22	Proof	4	M1 for setting up a correct equation in x , eg. $3x - 2 = x + 1$ M1 (dep) for a fully correct method to solve their equation or for $x = 1.5$ M1 (dep) for ("1.5" + 1) × 4 or (3 × "1.5" - 2) × 4 or (3 × "1.5" - 2) × 2 + ("1.5" + 1) × 2 C1 (dep on M3) for completing the proof resulting in a perimeter of 10 OR M1 for setting up a correct equation in x , eg. $2(3x - 2) + 2(x + 1) = 10$ M1 (dep) for a fully correct method to solve their equation or for $x = 1.5$ M1 (dep) for "1.5" + 1 and 3 × "1.5" -2 C1 (dep on M3) for completing the proof resulting in a justification that the shape is a square	
23	P: T: B = 1: 3: 6 $54 \div 10 \times 6$ OR e.g. T = 3P B = 2T So, B = 2(3P) = 6P P+T+B=P+3P+6P= 10P P = 54÷10 = £5.40 B = 6×£5.40	32.40	3	M1 for 1 : 3 : 6 or any three numbers in the ratio 1:3:6 in any order M1 for 54 ÷ (1 + 3 + 6) × 6 A1 for 32.4(0) Alternative 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 M1 for 54 ÷ 10 × 6 or $[54 \frac{+'10}{3'}] × 2$ $\frac{+'10}{6'}$ oe A1 for 32.4(0) OR M1 for a partial decomposition of £54 in ratio 1:3:6, e.g. (£)5 +(£)15 + (£)30 (=(£)50)
----	---	-------	---	---
				M1 for a partial decomposition of £54 in ratio 1:3:6, e.g. $(\pounds)5 + (\pounds)15 + (\pounds)30 (=(\pounds)50)$
				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)
24			2	M1 for correct intersecting arcs
				A1 for correct angle bisector

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.



ALWAYS LEARNING



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 (\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)

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. **9.** *a* = 4*b*

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

a =(1)

P = 4d - 3

10.

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

	P =(2)
	(Total 3 marks)
Here are the first five terms of a number sequence.	
17 21 25 29 33	3
(a) Write down the next two terms of the sequence.	
(b) Explain how you found your terms.	
(c) Work out the 12th term of the sequence.	
(d) Explain why 70 is not a term of this sequence.	

(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.

Smart Phone		DVDs £8.99 each		Lawnmower
£419				Basic £57 Electric £81
get 838 points		get 16 points for each DVD you buy		get 12 points for every £3 you spend

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.

Get £2.40 off the cost of your shopping for every 500 points

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?

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

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

(*a*) Write down the modal class interval.





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.



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)

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?

(Total 4 marks)

16.

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



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

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

(c) Find the area of triangle **E**.

cm

(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.

٥

(Total 3 marks)

TOTAL FOR PAPER IS 80 MARKS

	1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0					
Que	stion	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	M1for $24 \div 4 \times 3$ oe A1 cao	
5			125	2	M1 for complete method using graph eg 50 euros = \pounds 42; 42 × 3 A1 for 122 – 128	
6			36	1	B1 cao for Cazda	
-			120°	1	B1 cao for Zusuki	
			42	2	M1 for correct method from using 105°	
					e.g. 18 ÷ 45 × 105, "36" ÷ 90 × 105 or from table, e.g. Cazda "36" × 4–(18+36+48)	
					A1 for 42 or ft values from their table.	
7			Jane should buy Greens	4	M1 for Suttons: $140 \div 20 (= 7)$ bags of compost needed	
			Shop +		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)		25	1	B1 cao	
	(b)		yes with correct	3	M1 for method to calculate journey time travelling at 30 mph,	
			figures		eg $\frac{20}{30}$ (=0.66) or 40	
					(mms) 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						
Que	stion	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	
					eg 20 ÷ $\frac{50}{60}$ (= 24 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)		27 /1	2	P1 for 27: P1 for 41	
10	(a)		57,41	2		
	(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 ÷ 19 = 7.56	234.36	3	M1 for 143.64 ÷ 19 (or 7.56 seen) or 143.64 × 31 (or 4452.84 seen)	
		7.56 × 31 =			M1(dep) for '7.56' × 31 or '4452.84' ÷ 19	
					or 143.64 + 12×'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' × 143.64	
					A1 for 234.36 cao accent 234.36n	

	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 $838 + 4 \times 16 + 57 \div 3 \times 12^{\circ}$ A1 cao		
	(b)	$4500 \div 500 = 9$ 9×2.40 = 21.60 Or $22 \div 2.40 =$ 9.1666 9.1666×500 = 4583.33 Or £2.40 needs 500 points £24 needs 5000 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' × 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 ÷ 2.40' × 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 £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									
Que	estion	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)		$50 \le a \le 60$	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		$60 - 29 = 31$ $13 - 8 = 5$ $31 - 10 - 5 = 16$ $\boxed{\begin{array}{ccc} Th & C & It \\ W & 6 & 15 & 8 \\ M & 16 & 10 & 5 \\ \hline & 22 & 25 & 13 \\ \end{array}}$	16	4	M1 for calculation of total Men 60 - 29 (= 31 Men) M1 for calculation for Men who like Italian 13 - 8 (= 5 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				

1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0									
Que	stion	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		$(7 + 3 + 3) \times (4 + 3 + 3) - 7 \times 4 = 102$	11	4	M1 for a correct method to find the area of one appropriate rectangle				
		or $2 \times 7 \times 3 + 2 \times 4$			M1 for a complete method to find the area of the path				
		× 3			M1 (dep on M1) for "102" ÷ 10				
		$+ 4 \times 3 \times 3 = 102$			A1 cao				
16	(a)		Evens	1	B1 cao				
			Certain	1	B1 cao				
	(b)		4	2	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)		A and C	1	B1 for A and C (no extras)				
	(b)		B or E	1	B1 for B or E (or both) (no extras)				
	(c)		2	1	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×"3.5" + 3×"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)×"3.5" or 22×3.5 oe				

1MA1 Practice papers Set 6: Paper 2F (Regular) mark scheme – Version 1.0								
Question Workin		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 $3(n + 4)M1 for at least 2 trials withcorrect totals for 'n'A1 for 11 or 33C1 for Ann 7, Beth 11, and Cath33 oe$			
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) (b)		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 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								
Que	stion	Working	Answer	Mark	Notes				
Que	stion	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 ACB)				
					B1ft for bearing 180 + "36.8" if "36.8" is not 40–50, e.g. 216.8 to 217				
23		16 × 7 = 112 112 - 87	25	2	M1 for 6 × 14.5 (= 87) or 7 × 16 (=112) or 6 × 1.5 (= 9) or 7 × 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.



PEARSON

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

Same ena buys some cups of coffee. She only has $\pounds 10$

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, wri	te down	ı								
(a) a fact	or of 24	1,									
(b) a mu	ltiple of	7,									(1)
								••••	•••••		
(c) a squ	are num	ıber.									(1)
											(1)
										(Total 3 r	narks)

- **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.

28 kg
19 kg
15 kg
19 kg
8 kg
4 kg
7 kg

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

(3)
(Total 5 marks)

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



Height (cm)

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.
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.

.....

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



9. Here is a circle.



The circle has a radius of 4 cm.

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

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

(1)

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

Write 8 out of 20 as a percentage.

......%

11. Here is a solid cube.



(a) Find the surface area of the cube.

Here are two solid prisms made from centimetre cubes.



(b) Compare the volume of prism \mathbf{A} with the volume of prism \mathbf{B} .

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

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)

13. Here is a shape.



The total area of the shape is 1640 m^2 .

30% of the shape is blue.

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

550 m^2 of the shape is grey. The rest of the shape is white.

```
Is the white area more than 400 \text{ m}^2?
```



In the diagram, all angles are in degrees.

Angle AOB is a right angle. Angle AOC = Angle BOC.

Work out the value of *x*.

.....

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?

••••••

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

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?

£



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)

18.



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)

19.

20. Solve the simultaneous equations

$$2x - y = 13$$
$$x - 2y = 11$$

x =

y =

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 $P = \frac{w-3}{2}$

.....

23.	(a) Simplify fully $\frac{n^7 \times n^3}{n^6}$	
	(b) Factorise $5y - 15$	(2)
	(c) Factorise fully $18ab + 27ab^2$	(1)

(2) (Total 7 marks)

TOTAL 80 marks

	1MA1 Practice papers Set 6: Paper 3F (Regular) mark scheme – Version 1.0						
Que	stion	Working	Answer	Mark	Notes		
1		10 ÷ 1.4 = 7.142857143	7	2	M1 for 10 ÷ 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)		$+ 6 \text{ or} \times 1.75$	1	B1 for $+ 6$ or $\times 1.75$		
3	(a) (b) (c)		12 14 16	1 1 1	B1 cao B1 cao B1 cao		
4	(a) (b)		50 70	2 3	M1 for 1 kg = 1000g or 1 \div 20 (=0.05) A1 cao M1 for 5000/20 (= 250) or for 250		
					/100 (= 2.5) or for $5000/2000$ (= 2.5) M1 for 28 × "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) (b) (c)		(65, 100), (80, 110) plotted positive (correlation) 105 – 110	1 2	 B1 for plotting both points (65, 100), (80, 110) correctly (tolerance one square); ignore any additional plots given. B1 for positive (correlation) or length increases with height oe 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					
Que	stion	Working	Answer	Mark	Notes	
7			6:5	4	M1 for $\frac{2}{3} \times 165$ oe (= 110) [black counters] M1 (dep M1) for $\frac{40}{100} \times "110"$ oe (=44) M1 (dep M2) for (110 - "44") : 55 or 66 : 55 or a reversed ratio A1 cao OR M1 for 2 : 1; M1 for 2 × "1 - 0.4" or 1.2 M1 (dep M2) for "1.2" : 1; A1 cao OR M1 for correct method to find proportion of black counters left in the bag, e.g. $\frac{60}{100} \times \frac{2}{3} (= \frac{120}{300})$ M1 for correct method to find proportion of white counters in the bag ie $\frac{1}{3}$ oe M1 (dep M2) for correct method to find ratio after eg " $\frac{120}{300}$ " : " $\frac{1}{3}$ "	
8			pentagon	2	A1 cao B1	
			hexagon		B1	
9	(a)		8		B1 cao	
	(b)		tangent drawn		B1 any tangent drawn	
10		(8 ÷ 20) × 100	40	2	M1 for $(8 \div 20) \times 100$ or $\frac{40}{100}$ or $\frac{8}{20} = \frac{8 \times 5}{20 \times 5}$ A1 cao	
11	(a)		54	2	M1 for a complete method, e.g. 3×3 × 6 A1 cao	
	(b)		Both prisms have the same volume $(= 18 \text{ cm}^3)$	3	M1 for a method to find the volume of one of the prisms A1 for prism A = 18 and prism B = 18	

	1MA1 Practice papers Set 6: Paper 3F (Regular) mark scheme – Version 1.0					
Que	stion	Working	Answer	Mark	Notes	
					C1 ft (dep on M1) for a correct comparison of their two stated volumes	
12	(a) (b)	1 - 0.2 - 0.1 $0.7 \div 2$ 0.1×200	0.35 20	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 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 or1606 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					
Que	stion	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 ÷ '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 ÷ '6' A1 cao OR M1 for trial and improvement method using butter = 2 × sugar or flour = 1.5×butter oe M1 for an attempt to use butter = 2 × sugar and flour = 1.5 × butter, oe for one trial, eg 150, 100, 50 M1 for an attempt to use butter = 2×sugar and flour = 1.5×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					
Que	stion	Working	Answer	Mark	Notes	
10			0.50			
18			95° with reasons	4	M1 for angle $DBC = 180 - 125$ (= 55) or angle $EAC = 180 - 125$ (=55) (May be on diagram) A1 for $x = 95$ C2 (dep on M1) with full reasons for their given method, e.g. angles on a straight line add up to 180° and angles in a triangle add up to 180° and corresponding angles are equal or allied angles / co-interior angles add up to 180° and angles in a triangle add up to 180° (C1 (dep on M1) for one appropriate reason linked to parallel lines) M1 for angle $CDB = 125 - 30$ (= 95)) (May be on diagram) A1 for $x = 95$ C2 (dep on M1) for full reasons, for their given method, e.g. exterior angles are equal to the sum of the <u>interior opposite</u> angles and corresponding angles are equal (C1 (dep on M1) for one of these appropriate reasons linked to parallel lines)	
19		$25 \div 50 = 0.5h$ = 30 min $25 \div 60 =$ 0.416h = 25 min	5	3	M1 for $25 \div 50$ or $\frac{60}{50} \times 25$ or 30 (min) or $0.5(\text{h})$ or $25 \div 60$ or $\frac{60}{60} \times 25$ or 25 (min) or 0.41(6)(h) M1(dep) '0.5' -'0.41(6)'or '30' - '25' A1 cao OR M1 for $60 \div 25 (= 2.4)$ and $60 \div `'2.4''$ or $50 \div 25 (= 2)$ and $60 \div `'2''$ M1(dep) for '30' - '25' A1 cao	

	1MA1 Practice papers Set 6: Paper 3F (Regular) mark scheme – Version 1.0						
Que	stion	Working	Answer	Mark	Notes		
20		4x - 2y = 26x - 2y = 113x = 152x - y = 132x - 4y = 223y = -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 ÷ 5 × 2 (= 16) or for a correct method to find $\frac{5}{8}$ of 40; eg. 40 ÷ 8 × 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 ÷ 5 × 3 (= 24) or for a correct method to find $\frac{3}{8}$ of 40; eg. 40 ÷ 8 × 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) (b)		n^4 $3x^2 + 4x$	2	M1 for $\frac{n^{10}}{n^6}$ oe or $\frac{n^7}{n^3}$ oe or $n \times n^3$ oe A1 cao B2 for $3x^2 + 4x$ or $x(3x + 4)$		
	(c)		9 <i>ab</i> (2 + 3 <i>b</i>)	2	(B1 for $x^2 - 2x$ or $2x^2 + 6x$ or $3x^2 + nx$ or $px^2 + 4x$) 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						
Question	ion Working Answer Mark		Mark	Notes		
				or $3b(6a + 9ab)$ or $9ab$ (a two term algebraic expression))		