Name	
Form	
Teacher	

Maths Homework Booklet

Year 9c Autumn

Section	Hand in by	Score
Straight line graphs		
Forming and solving equations		
Testing conjectures		
3 dimensional shapes		
Constructions and congruency		
Mixed A		
Mixed B		
Mixed C		
Mixed D		
Mixed E		
Mixed F		
Mixed G		

	White Rose	2 Complete the table of values for $y = 3x + 2$	
Year 9	Maths		
Straight Line Graphs		<u>у</u>	2 marks
Name	-	On the grid, draw the graph of $y = 3x + 2$ for values of x from -2 to 2	
1 Two straight lines l_1 and l_2 are shown on the grid.		8 <i>y</i>	
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$		3 Write down the gradient of each line segment.	2 marks
Write down the coordinates of the point where l_1 and l_2 meet.			
	l mark		
Write down the equations of the lines.			\square
	2 marks		2 marks
4 Which of these graphs will go through the point (0, 4)? Circle your answers. y = 4x $y = x + 4$ $y = 4 - xy = x - 4 y = \frac{x}{4}5 Write down the gradient and the coordinates of the y-intercept of the line y = 7 - 2xGradientg-intercept6 Work out the equation of the line.$	2 marks	 Image: A state of the state of	2 marks
	2 marks	Total marks	



Year 9 Testing Conjectures Name Circle the prime numbers.	White Rose Maths	 3 Are the statements always true, sometimes true or never true? Circle your answers and explain your reasoning. Multiples of 3 are odd Always True Sometimes True Never True 	
 1 2 3 11 21 35 2 Decide if each statement is true or false. Explain your answers. All the factors of 20 are less than 20 	2 marks	When you add two prime numbers, the answer is evenAlways TrueSometimes TrueNever True	l mark
Multiples of 4 are also multiples of 2	I mark	4 Show that 10% of 50 = $\frac{1}{3}$ of 15	l mark
x = 5 is the solution to the equation $12 - x = 7$	I mark		2 marks
 S Expand 4(x + 3) Expand x(x + 4) Expand and simplify (x + 5)(x + 7) Nijah is investigating the sequence given by the rule 4n + 1. She makes two conjectures. Test the two conjectures to see if she is correct. All the terms in the sequence are odd 	I mark	7 The shapes highlighted on the grid are L_8 and L_{27} Image: triangle integrid	I mark
203 is not a term in the sequence.	I mark	Total marks	2 marks





Straight line graphs

1 Write down the gradient (m) and *y*-intercept (c) of the lines with equations

a $y = 4x + 7$
Gradient = y-intercept =
b $y = -2x$
Gradient =
<i>y</i> -intercept =
c $y = 1 - \frac{1}{3}x$
Gradient =
y-intercept =

2 Write down the equation of the line that has gradient 3 and *y*-intercept -10.

3	Find	the	gradient	of the	lines
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а	2y = x
	Gradient =
b	2x + y = 8
	Gradient =

- **4** Find the coordinates of the *y*-intercept of the lines in question 3.
 - **a** *y*-intercept = (.....)
 - **b** *y*-intercept = (.....)
- **5** Write down the equation of the line which has gradient $-\frac{1}{2}$ and passes through the point (0, 4).
- 6 Find the gradient and coordinates of the *y*-intercept for each line.



Equations and inequalities

1. Solve these equations.

a 2(<i>x</i> + 1) = 10	b $2(x + 1) = 5$
······	
c $13 = 2(x + 3)$	d $2(1-2z) = -3$
2. Solve these inequalities.	
a 2 <i>x</i> + 5 > 11	b $3x - 1 \ge 14$
c 4 <i>x</i> + 13 < 1	d $5x - 9 \le 4$
3. Solve	
a $5x + 1 = 6 + 4x$	b $3x - 7 = 5x - 9$
c 1 – 6 <i>x</i> = 8 – 7 <i>x</i>	d $2(x - 1) = x + 9$
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Testing conjectures

1 Here are the first five terms of an arithmetic sequence.

2 9 16 23 30

Joanna says that 344 is a term in this sequence.

Is Joanna right or wrong? You must fully explain your answer.

2 Here are the first five terms of two arithmetic sequences.

3 11 19 27 35

0 3 6 9 12

Salman says that the number 75 is a term in both sequences. Is he right or wrong? You must show a full explanation.

3 Tom says that y = 5x + 2 is parallel to y = 3x + 2. Is he correct? Give a full explanation.

4 Is y = 4 - x parallel to y = 4 + x? Explain your decision.

5 When you add together two **odd** numbers, you get an odd number. True or false? Try to explain why.

6 When you **multiply** an odd number by another odd number, you get an odd number. True or false? Try to explain your reasoning.

3-D shapes

1. Complete the following table

Shape	Name	Number of Faces	Number of Edges	Number of Vertices
	Triangular Pyramid			
	Square Pyramid			
	Cube			
	Cuboid			
	Triangular Prism			
	Pentagonal Prism			
	Hexagonal Prism			

2. Find the volume and surface area of each of these shapes. Show your working.



- 1 V= SA=
- 2 V= SA=
- 3 V= SA=
- 4 V= SA=
- 5 V= SA=

Constructions and congruency

1 Circle the shape on the right which is congruent to the shape on the left



2 In the space at the side, draw the net of this cuboid.

Its dimensions are 1cm x 2cm x 3cm



3 Adam draws a plan of his bedroom using a scale of 1:200. Find the actual lengths of the walls in his bedroom. You can assume each square is a 1 cm square. Put the answers on the diagram.

4 On a plan, an actual length of 5m is represented by a length of 25cm. What is the scale of the plan?

Mixed A

 Four times a number is thirty two. What is the number? 14 + = 80 ÷ 4 	10. In a sale, there is twenty-five per cent off all prices.A bed costs thirty- three pounds in the sale.How much was it before the sale?	
 3. (16÷4)x(7-4) = 4. What is 42 divided by 6? 	11. What is the mean of these numbers? 2, 6, 9, 7	
 5. What is the remainder when forty-three is divided by six? 6. What number is half-way between thirteen and thirty-one? 	12. A packet of biscuits costs forty-seven pence.Josh buys two packets. How much change does he get from one pound?	
 7. The coordinates of a square are; (7,2), (7,7), (2,7) and (?,?) 8. What is twenty-three multiplied by eight? 	13. Calculate the perimeter of a regular hexagon which has a side of 8 cm long.	
9. 141 ÷ 3 =	14. A tv programme starts at quarter past 4 in the afternoon and lasts for 50 minutes. What time does it finish?	

Mixed B

 Three times a number is 42. What is the number? 2. 24 + = 120 ÷ 3 	 11. In a sale, there is twenty-five per cent off all prices. A chair costs £45 in the sale. How much was it before the sale? 	
3. (28÷4) x (7−2) =	12. What is the mean of these numbers?	
4. What is 5.6 divided by 8?	2,6,9,4,4	
5. What is the remainder when forty-five is divided by seven?	13. Joe has some pocket money. He spends 90% of it. He has fifty pence left. How much pocket money did he have?	
6. What number is half-way between fifteen and thirty-seven?		
7. The coordinates of a square are (1,8), (7,8), (7,2) and (?,?)	14. Calculate the perimeter of an equilateral triangle which has a side of 14 cm.	
8. What is twenty-four multiplied by six?		
9. 168 ÷ 3 =	15. A film starts at quarter to eleven in the morning and lasts for 1hour and 25	
10. Subtract one point nine from three point two.	minutes. What time does it finish?	

Mixed C

 Four times a number is 64. What is the number? - 10 = 90 ÷ 3 	11. In a sale, there is prices. ————————————————————————————————————	10 per cent off all he sale. ore the sale?
3. (6x3)+(?-1)=26	12. What is the medi- numbers?	an of these
4. What is the product of 0.9 and 6?	2,7,3,6,9	9, 1, 4
5. What is the remainder when thirty-eight is divided by four?	13. Joe has some poo spends 50% of it. He £2. He has 70p left. H	ket money. He then spends another low much pocket
6. What number is half-way between 12 and 34?	money did he have?	
7. The coordinates of a square are; (3,3), (3,9), (9,9) and (?,?)	14. Calculate the per with sides 6cm and 1	imeter of rectangle 2cm.
8. What is twenty-three multiplied by five?		
9. 147÷3 =	15. A film starts at tw the morning and last	enty past eleven in s for 1hour and 55
10. Subtract one point seven from four point one.	minutes. What time o	Joes it finish?

Mixed D

 Six times a number is two hundred and forty. What is the number? 2 15 = 75 ÷ 3 	 11. In a sale, there is 50% off all prices. A chair costs £17.50 in the sale. How much was it before the sale?	
3. $(36 \div 6) + (4 \times 3) =$	12. What is the median of these numbers? 12 , 6 , 3 , 7 , 11	
 5. What is the remainder when thirty-three is divided by seven? 6. What number is half-way between twenty-one and fifty-three? 	13. A packet of biscuits costs 55 pence. Josh buys three packets. How much change does he get from two pounds?	
 7. The coordinates of a square are; (0,6), (0,0), (6,0) and (?,?) 8. How many thirties are there in six hundred? 	14. Calculate the perimeter of a square which has a side of 5.3cm	
9. What is twenty-three multiplied by four? 10. What is double 12.8?	 15. How would a quarter to four in the afternoon be shown on a twenty-four hour digital clock?	

Mixed E

1. Six times a number is forty two. What is the number? 2. + 15 = 120 ÷ 4	 11. In a sale, there is twenty-five per cent off all prices. A tv costs £90 in the sale. How much was it before the sale?
3. (8 x 4) - (7 x 3) = 4. What is 56 divided by 8?	12. What is the median of these numbers? 8, 4, 9, 2, 3
 5. What is the remainder when forty-nine is divided by five? 6. What number is half-way between six and twenty-four? 	 13. A packet of biscuits costs eighty-nine pence. Josh buys two packets. How much change does he get from two pounds?
 7. The coordinates of a square are; (3,2), (8,2), (8,7) and (?,?) 8. What is twenty-five multiplied by five? 	14. Calculate the perimeter of a regular pentagon which has a side of 9 cm.
9. 87 ÷ 3 = 10. What is double 9.7?	15. A tv programme starts at twenty-five past nine in the evening and lasts for 50 minutes. What time does it finish?

Mixed F

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 Seven times a number is 280. What is the number? 2. 20 - □ = 28 ÷ 4 	11. In a sale, there is 25% off all prices. A chair costs £90 in the sale. How much was it before the sale?	
 3. (5 x 3) + (18 ÷ 2) = 4. What is the sum of 24 and 12 divided by 9? 	12. What is the mean of these numbers? 2,8,4,6,5	
 5. What is the remainder when 55 is divided by 6? 6. What number is half-way between twenty-three and fifty-one? 	13. Joe has some pocket money. He spends a fifth of it. He has £2 left. How much pocket money did he have?	
 7. The coordinates of a square are (-1,-1), (3,-1), (3,3) and (?,?) 8. How many twenty-fives are there in two hundred? 	14. Calculate the perimeter of a rectangle which is 4.5 metres long and 2 metres wide.	
9. What is twenty-three multiplied by six? 10. What is double 14.6?	15. A tv programme begins at 16: 35 and finishes at 17:20. How long was the programme?	

Mixed G

1. Divide 57.34 by one hundred.	11. 10.1 – 2.7
2. 46.99 x 10	12. One book costs £1.98. How much do three books cost?
3. Round 87.09 to one decimal place.	13. What is two thirds of twenty-four?
4. Round 14.49 to the nearest whole number.	14. What fraction of a pound is seventy- five pence?
5. Which of the numbers below are exactly divisible by 5? 115 502 968 646 880	15. Find 40% of 150
6. Which is bigger, 40% of 1,000 or ¼ of 1,200?	16. What is sixty multiplied by seventy?
 7. Which decimal is equal to ⁴/₂₀ ? 0.6 0.15 0.2 0.3 0.4 	17. What is the difference between 103 and 302?
8. Put these in order of size, smallest first. 0.3 $25\% \frac{2}{5}$	18. What temperature is ten degrees lower than -7°C ?
9. What is the fraction $^{12}/_{16}$ in its simplest form?	19. Six cakes cost £4.20. How much do seven cakes cost?
10. Which fraction is equal to $\frac{2}{3}$? $\frac{4}{8}$ $\frac{6}{9}$ $\frac{5}{15}$	20. In a group of 42 children, there are twice as many boys as girls. How many girls are there?