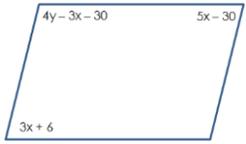
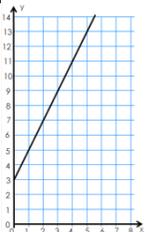
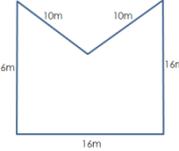
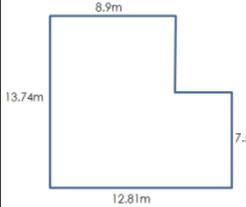
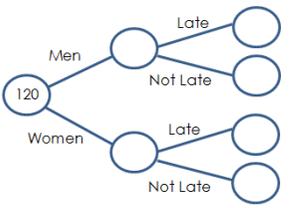


A BIT OF MATHS EACH DAY – FOUNDATION TIER – MARCH 2018 – NON CALCULATOR

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY																																			
			1 st	2 nd	3 rd	4 th																																			
<h1 style="color: red; font-size: 2em; margin: 0;">March Non- Calculator</h1>	<p>The best way to learn mathematics is to DO mathematics.</p> <p>If you do something regularly on a daily basis you will make a bigger difference than leaving it till just before your exams.</p> <p>If you need help there are some fantastic videos at www.corbettmaths.com</p> <p>Or you can always tweet me @mrchadburn</p>	<p>Donald needs to hire a car for 15 days. He is considering 3 places to hire his car from. Each uses a formula to find the Cost (£C) using the number of days (D)</p> <p>PETE'S: $C = 24D + 50$</p> <p>QUEENIES: $C = 30D$</p> <p>ROGERS: $C = 21D + 100$.</p> <p>Where should he hire his car from? You must explain your working.</p>	 <p>The shape above is a parallelogram. Find the value of y.</p>	<p>Key: = 11 marks</p> <table style="border-collapse: collapse; margin-bottom: 10px;"> <tr><td style="border: 1px solid black; padding: 2px;">0</td><td style="border: 1px solid black; padding: 2px;">9</td><td colspan="4"></td></tr> <tr><td style="border: 1px solid black; padding: 2px;">1</td><td style="border: 1px solid black; padding: 2px;">1</td><td style="border: 1px solid black; padding: 2px;">6</td><td style="border: 1px solid black; padding: 2px;">7</td><td style="border: 1px solid black; padding: 2px;">8</td><td></td></tr> <tr><td style="border: 1px solid black; padding: 2px;">2</td><td style="border: 1px solid black; padding: 2px;">1</td><td style="border: 1px solid black; padding: 2px;">2</td><td style="border: 1px solid black; padding: 2px;">7</td><td style="border: 1px solid black; padding: 2px;">8</td><td style="border: 1px solid black; padding: 2px;">9</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">3</td><td style="border: 1px solid black; padding: 2px;">0</td><td style="border: 1px solid black; padding: 2px;">0</td><td style="border: 1px solid black; padding: 2px;">1</td><td style="border: 1px solid black; padding: 2px;">5</td><td style="border: 1px solid black; padding: 2px;">6</td><td style="border: 1px solid black; padding: 2px;">7</td><td style="border: 1px solid black; padding: 2px;">8</td><td style="border: 1px solid black; padding: 2px;">9</td></tr> <tr><td style="border: 1px solid black; padding: 2px;">4</td><td style="border: 1px solid black; padding: 2px;">0</td><td style="border: 1px solid black; padding: 2px;">1</td><td style="border: 1px solid black; padding: 2px;">2</td><td style="border: 1px solid black; padding: 2px;">5</td><td colspan="4"></td></tr> </table> <p>Another class gained a median mark of 28 and a range of 20.</p> <p>(c) Compare the two class's performance in the test.</p>	0	9					1	1	6	7	8		2	1	2	7	8	9	3	0	0	1	5	6	7	8	9	4	0	1	2	5					<p>The stem and leaf diagram on the left illustrated the marks in a mathematics test in a particular class.</p> <p>(a) Find the median</p> <p>(b) Find the range.</p>
0	9																																								
1	1	6	7	8																																					
2	1	2	7	8	9																																				
3	0	0	1	5	6	7	8	9																																	
4	0	1	2	5																																					
5 th	6 th	7 th	8 th	9 th	10 th	11 th																																			
<p>A wall is 8m long and 1.8m high. Paul is tiling it with tiles which measure 20cm by 18cm. The tiles are to be red, white and black. $\frac{5}{8}$ are to be red. White and black are to be in the ratio 7:8. How many of each colour will he require?</p>	<p>(a) Write 0.0247 as a fraction.</p> <p>(b) Write $\frac{11}{40}$ as a percentage.</p> <p>(c) Increase £65 by 18%.</p>	<p>(a) Convert 8.1km into mm.</p> <p>(b) Convert 3.4m² into cm².</p> <p>(c) Convert 948000mm³ into cm³.</p>	<p>Work out</p> <p>(a) 9.39×8.3</p> <p>(b) $107.016 \div 0.12$</p> <p>Both must be done without the use of a calculator.</p>	<p>Use the calculation $42.3 \times 1.89 = 79.947$ to answer the following questions:</p> <p>(a) 4.23×0.0189</p> <p>(b) 4230×0.189</p> <p>(c) $7.9947 \div 189$</p>		<p>The graph illustrates the charges of a particular taxi firm where x is the miles travelled and y is the cost of the journey.</p> <p>(a) Interpret the intercept of the graph on the y-axis.</p> <p>(b) Interpret the gradient of the graph.</p> <p>(c) Write down the equation of the line in the form $y = mx + c$.</p>																																			
12 th	13 th	14 th	15 th	16 th	17 th	18 th																																			
<p>(a) Expand and simplify $(3x + 2)(2x - 7)$</p> <p>(b) Solve the equation $x^2 + 2x - 80 = 0$</p>	<p>A shape, A, is translated using the vector $\begin{pmatrix} 4 \\ -2 \end{pmatrix}$ to produce shape B. Shape B is then translated using the vector $\begin{pmatrix} -1 \\ -3 \end{pmatrix}$ to form shape C. Shape C is then translated using the vector $\begin{pmatrix} -2 \\ 2 \end{pmatrix}$ to form shape D. Which single transformation would take shape A direct to shape D?</p>	 <p>The shape above is a pentagon. Work out its area.</p>	<p>A market stall sells cakes, bread rolls and loaves of bread in the ratio 7 : 13 : 8. They sell 25 more rolls than loaves.</p> <p>How many cakes do they sell?</p>	<p>Factorise</p> <p>(a) $12x - 18y$</p> <p>(b) $15x^2y^4 - 3xy^2 + 24x^3y^2$</p> <p>(c) $x^2 - 11x + 28$</p>		<p>(a) Estimate the area of this shape.</p> <p>(b) Is your answer an underestimate or over-estimate? You must explain your reasoning.</p>																																			
19 th	20 th	21 st	22 nd	23 rd	24 th	25 th																																			
<p>Make r the subject of the formula</p> $p = \frac{3r - n}{5}$	<p>Ian is travelling from Sheffield to Edinburgh. His train left Sheffield train station at 0821 and arrived in Edinburgh at 1321. The train travelled at an average speed of 50 miles per hour.</p> <p>Annette is travelling the other way but unfortunately her train is diverted via Manchester. It had to travel an extra 70 miles. She left Edinburgh at 1042 and arrived in Sheffield at 1722. What was the difference in their average speeds?</p>	<p>(a) Expand and simplify $5(3x + 2) - 4(2 - 3x)$</p> <p>(b) Solve $3(5x - 1) = 4(2x + 9)$</p>	<p>Points A and B have coordinates (-2, 5) and (6, -1) respectively.</p> <p>(a) What is the coordinate of the midpoint of the line AB?</p> <p>(b) What is the length of the line AB?</p>	<p>(a) Write 360 as a product of prime factors.</p> <p>(b) Write 420 as a product of prime factors.</p> <p>(c) Use your answers to (a) and (b) to find the Highest Common Factor (HCF) of 360 and 420.</p> <p>(d) Use your answers to (a) and (b) to find the Lowest Common Multiple (LCM) of 360 and 420.</p>		<p>120 people work at a factory. 84 are men.</p> <p>On a particular day the weather is bad and 32 of the men are late. 56 people were late altogether.</p> <p>(a) Complete the frequency tree.</p> <p>(b) What is the probability a woman was not late?</p> <p>(c) What percentage were late?</p>																																			
26 th	27 th	28 th	29 th	30 th	31 st	1 st April																																			
<p>The ratio of men to women in a company is 9:11.</p> <p>Of the men, 10% are left handed.</p> <p>95% of the women are right handed.</p> <p>What percentage of the company are left handed?</p>	<p>A year group is surveyed to find out their favourite football team. The results were:</p> <p>Liverpool 18</p> <p>Manchester United 26</p> <p>Manchester City 12</p> <p>Sheffield United 100</p> <p>Sheffield Wednesday 64</p> <p>No team 20</p> <p>Draw a pie chart to illustrate this data.</p>	<p>(a) Convert 25100 to standard form</p> <p>(b) Convert 8.21×10^{-3} to a normal number</p> <p>(c) Work out the answer to $(2.5 \times 10^3) \times (5 \times 10^{-5})$ giving your answer in standard form.</p>	<p>(a) The value of x is 0.021 rounded to 2 significant figures. Write down the interval range of x.</p> <p>(b) Estimate the value of $\frac{391.1 \times 9.7^2}{0.781}$</p>	<p>Draw the graph of $y = 3x - 5$ in the range $-2 \leq x \leq 5$</p>	<p>The first 7 terms of the Tribonacci Sequence are 1, 1, 1, 3, 5, 9,...</p> <p>The rule to continue the Tribonacci Sequence is "the next term in the sequence is the sum of the previous 3 terms".</p> <p>(a) Write down the next 3 Tribonacci numbers.</p> <p>(b) The first four terms of a different tribonacci sequence are a, a, b, 2a+b. Show that the 7th term is 10a + 7b</p> <p>(c) The fourth term is 21 and the 7th term is 123. Find the values of a and b.</p>																																				