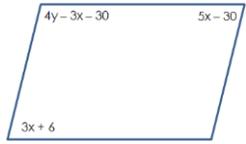
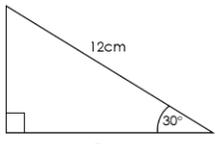
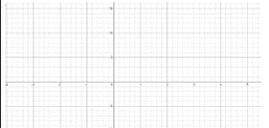
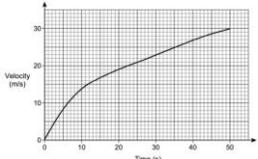
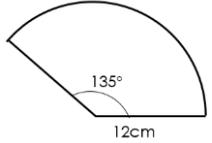
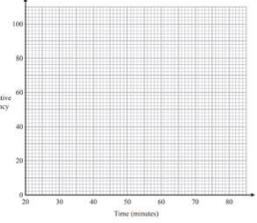
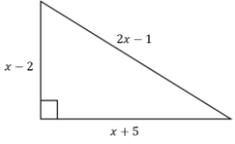
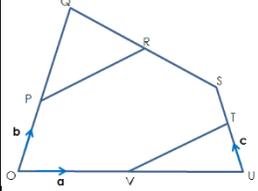
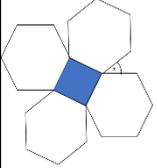


**A BIT OF MATHS EACH DAY – HIGHER TIER – MARCH 2022 – NON CALCULATOR – PAPER 1**

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY																						
	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	5 <sup>th</sup>	6 <sup>th</sup>																						
<h1>March</h1> <h2>Non-Calculator</h2> <h3>PAPER 1</h3>	Find the value of (a) $12^0$ (b) $125^{4/3}$ (c) $\left(\frac{8}{27}\right)^{-5/3}$	Work out $2\frac{3}{4} \times 1\frac{2}{5}$	A circle has equation $x^2 + y^2 = 20$ . Find the equation of a tangent to the circle where $x = 2$ and $y > 0$ .	 <p>The shape above is a parallelogram. Find the value of <math>y</math>.</p>	(a) Write 360 as a product of prime factors. (b) Write 420 as a product of prime factors. (c) Use your answers to (a) and (b) to find the Highest Common Factor (HCF) of 360 and 420. (d) Use your answers to (a) and (b) to find the Lowest Common Multiple (LCM) of 360 and 420.																							
7 <sup>th</sup>	8 <sup>th</sup>	9 <sup>th</sup>	10 <sup>th</sup>	11 <sup>th</sup>	12 <sup>th</sup>	13 <sup>th</sup>																						
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>Find the value of <math>x</math>. Give your answer in exact form.</p>	Put these numbers in order of size, from smallest to largest... $0.031, 2.98 \times 10^{-2}, 0.4 \times 10^{-1}, 937 \times 10^{-5}$	On her way to work, Jill has to go through two sets of traffic lights. The probability she is stopped by the 1 <sup>st</sup> set is 0.3. The probability she is stopped by the 2 <sup>nd</sup> set is 0.4. On a particular day, what is the probability she is stopped by exactly 1 set of lights?	A cube is made of concrete. It has length of side 40cm. The density of concrete is $2.5\text{g/cm}^3$ . What is the mass of the cube? Give your answer in kilograms.	(a) Complete the table of values for the function $y = x^2 - 2x - 8$ .  <table border="1" data-bbox="1881 486 2150 526"> <tr> <td><math>x</math></td> <td>-4</td> <td>-3</td> <td>-2</td> <td>-1</td> <td>0</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td><math>y</math></td> <td></td> </tr> </table> (b) On axes similar to the ones on the left, plot the graph of $y = x^2 - 2x - 8$ . (c) Use your graph to solve the equation $x^2 - 2x - 8 = 0$ (d) Write down the coordinate of the turning point of $y = x^2 - 2x - 8$ .		$x$	-4	-3	-2	-1	0	1	2	3	4	5	$y$										
$x$	-4	-3	-2	-1	0	1	2	3	4	5																		
$y$																												
14 <sup>th</sup>	15 <sup>th</sup>	16 <sup>th</sup>	17 <sup>th</sup>	18 <sup>th</sup>	19 <sup>th</sup>	20 <sup>th</sup>																						
(a) Solve the equation $x^2 + 2x - 80 = 0$ (b) Solve the inequality $3 - 5x \leq 9 - 2x$	Show that $\frac{5-4\sqrt{3}}{9+2\sqrt{12}}$ can be written as $\frac{93-56\sqrt{3}}{33}$	 <p>Estimate the acceleration after 10 seconds.</p>	A line is perpendicular to another line with equation $5x + 2y - 7 = 0$ . It goes through the point with coordinate (3, -2). Work out the equation of the line in the form $ax + by + c = 0$ where $a, b$ and $c$ are integers to be found.	 <p>Find the sector area AND arc length of this sector. Give your answer in terms of <math>\pi</math>.</p>	(a) On axes similar to those on the right, draw a cumulative frequency diagram for the data in the table, the time taken for some people to travel to an event. <table border="1" data-bbox="1780 726 1892 805"> <thead> <tr> <th>Time taken (min)</th> <th>Number of people</th> </tr> </thead> <tbody> <tr><td>0-10</td><td>1</td></tr> <tr><td>10-20</td><td>10</td></tr> <tr><td>20-30</td><td>20</td></tr> <tr><td>30-40</td><td>15</td></tr> <tr><td>40-50</td><td>10</td></tr> <tr><td>50-60</td><td>5</td></tr> <tr><td>60-70</td><td>2</td></tr> <tr><td>70-80</td><td>1</td></tr> </tbody> </table> Estimate the (b) inter-quartile range. (c) number of people who took longer than 65 minutes.	Time taken (min)	Number of people	0-10	1	10-20	10	20-30	20	30-40	15	40-50	10	50-60	5	60-70	2	70-80	1					
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21 <sup>st</sup>	22 <sup>nd</sup>	23 <sup>rd</sup>	24 <sup>th</sup>	25 <sup>th</sup>	26 <sup>th</sup>	27 <sup>th</sup>																						
Given that $\frac{a}{b} = \frac{4}{9}$ & $\frac{a}{c} = \frac{5}{12}$ Find $a : b : c$ giving your answer in its simplest form	 <p>Find the perimeter of this right-angled triangle.</p>	An equilateral triangle has side of 6cm. Find the area of the triangle, giving your answer as an exact number.	M is indirectly proportional to the cube root of P. When $M = 10, P = 8$ . What is the value of P when $M = 40$ ?	Work out $4\frac{2}{3} - 2\frac{5}{8}$	 <p>P, R, T and V are the midpoints of OQ, QS, SU and OU respectively.  <math>\vec{OV} = \mathbf{a}, \vec{OP} = \mathbf{b}</math> &amp; <math>\vec{UT} = \mathbf{c}</math></p> <p>Show that PR and VT are parallel.</p>																							
28 <sup>th</sup>	29 <sup>th</sup>	30 <sup>th</sup>	31 <sup>st</sup>																									
The ratio of men to women in a company is 9:11. Of the men, 10% are left handed. 95% of the women are right handed. What percentage of the company are left handed?	Write 1.135 as an improper fraction in its simplest form.	 <p>The diagram shows a square surrounded by regular hexagons. Find the size of angle <math>x</math>.</p>	Work out the answer to... (a) $(5.2 \times 10^{-4}) \times (4 \times 10^{-3})$ (b) $\frac{1.2 \times 10^2}{4.8 \times 10^{-5}}$	<p align="center">The best way to learn mathematics is to DO mathematics.                      If you do something regularly on a daily basis you will make a bigger difference than leaving it till just before your exams.                      If you need help there are some fantastic videos at <a href="http://www.corbettmaths.com">www.corbettmaths.com</a>                      Or you can always tweet me @mrchadburn                      This calendar has been designed with the Edexcel Paper 1 topic list in mind.</p>																								