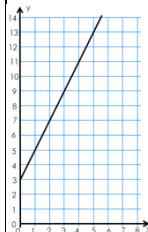
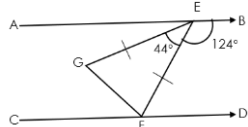
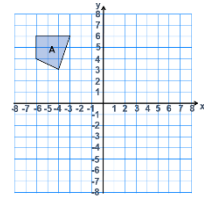
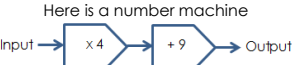
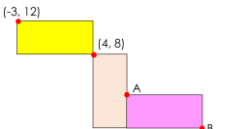
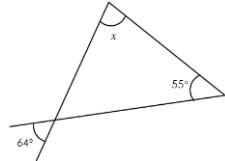
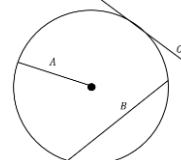


A BIT OF MATHS EACH DAY – FOUNDATION TIER – APRIL 2023 – CALCULATOR

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY																							
30 th				1 st	1 st	2 nd																							
<h1 style="color: red; font-size: 2em;">April Calculator</h1>		<p>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 www.corbettmaths.com Or you can always tweet me @mrchadburn</p>			<table border="1" style="margin-bottom: 10px;"> <thead> <tr> <th style="text-align: center;">Age</th> <th style="text-align: center;">Frequency</th> </tr> </thead> <tbody> <tr><td style="text-align: center;">3</td><td style="text-align: center;">3</td></tr> <tr><td style="text-align: center;">4</td><td style="text-align: center;">5</td></tr> <tr><td style="text-align: center;">5</td><td style="text-align: center;">7</td></tr> <tr><td style="text-align: center;">6</td><td style="text-align: center;">10</td></tr> <tr><td style="text-align: center;">7</td><td style="text-align: center;">10</td></tr> <tr><td style="text-align: center;">8</td><td style="text-align: center;">6</td></tr> <tr><td style="text-align: center;">9</td><td style="text-align: center;">1</td></tr> </tbody> </table> <p>The table shows the shoe sizes of a group of Y11 students. (a) What is the modal shoe size? (b) What is the range of shoe sizes? (c) What is the median shoe size? (d) What is the mean shoe size?</p>		Age	Frequency	3	3	4	5	5	7	6	10	7	10	8	6	9	1							
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3 rd	4 th	5 th	6 th	7 th	8 th	9 th																							
<p>Annette is travelling to Switzerland. The exchange rate between British Pounds (£) and Swiss Francs (CHF) is £1 = 1.18CHF. She converts £840 into Swiss Francs. When in Switzerland she spends 712CHF. When she returns, the exchange rate is 1CHF = £0.90. What percentage of her original £840 has she got left after converting it back into pounds?</p>	<p>In 2007, Brian bought a house for £180,000. In 2022 he sold his house for £250,000. What percentage profit did he make?</p>	<p>Rose, Steve and Terry shared some sweets. Steve received 25% more than Rose. Rose and Terry's share was in the ratio 4 : 9. Steve received 20 sweets. How many sweets in total did the three receive?</p>	<p>Mario makes 65 pizzas. The cost of making each pizza is £1.80. He wants to make a total profit of 50%. If he sells all 65 pizzas, what should he charge for each pizza so that he can make this profit?</p>	<p>(a) Expand and simplify fully $(3x + 7)(2x - 9)$ (b) Factorise fully $24x^3y^2 - 18x^2y$ (c) Simplify fully $\frac{3a^2 \times 8ab}{6ab^2}$</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. (a) Interpret the intercept of the graph on the y-axis. (b) Interpret the gradient of the graph. (c) Write down the equation of the line in the form $y = mx + c$.</p>																								
10 th	11 th	12 th	13 th	14 th	15 th	16 th																							
<p>A rectangle has length 12cm and perimeter of 39cm. What is its area?</p>	<p>Brian bought a car in 2017 for £12,500. The car depreciates at a rate of 9% per year. (a) What was its value in 2018? (b) What will its value be in 2023?</p>	<p>(a) $x = 8.9$ and has been rounded to 1 decimal place. What is the error interval for x? (b) $y = 300$ and has been rounded to 1 significant figure. What is the error interval for y?</p>	<p>Draw the graph of $y = 3x - 5$ in the range $-1 \leq x < 5$</p>	 <p>Find the size of angle CFG. Give geometric reasons for each stage of your working.</p>	 <p>Shape A is rotated 180° about the origin and then translated using the vector $\begin{pmatrix} -3 \\ -2 \end{pmatrix}$ to become shape B. What single transformation takes shape B back on to shape A?</p>																								
17 th	18 th	19 th	20 th	21 st	22 nd	23 rd																							
<p>Here is a number machine</p>  <p>(a) What is the output when the input is 8? (b) What is the input when the output is 93? (c) Show that there is a value for the input for which the input and output have the same value.</p>	<p>A rectangle has an area of $14\frac{14}{15} \text{ cm}^2$. Its length is $5\frac{1}{5} \text{ cm}$. What is its width?</p>	 <p>The diagram shows three congruent rectangles. What are the coordinates of A and B?</p>	 <p>Find the size of angle x. Give geometric reasons for each stage of your working.</p>	<p>(a) Point A has coordinate $(-3, 1)$. It is reflected in the y-axis. What is the new coordinate? (b) Point B has coordinate $(-6, -2)$. It is translated by the vector $\begin{pmatrix} 5 \\ -3 \end{pmatrix}$ then reflected in the x-axis. What is the new coordinate?</p>	<p>The two way table shows the number of students in three year groups in a school. (a) Complete the two way table. A student is chosen at random. (b) What is the probability it is a year 11 girl?</p>	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th rowspan="2"></th> <th colspan="3">Year Group</th> <th rowspan="2">Total</th> </tr> <tr> <th>9</th> <th>10</th> <th>11</th> </tr> </thead> <tbody> <tr> <td>Boys</td> <td></td> <td></td> <td>125</td> <td>407</td> </tr> <tr> <td>Girls</td> <td></td> <td>123</td> <td></td> <td></td> </tr> <tr> <td>Total</td> <td>303</td> <td>256</td> <td></td> <td>831</td> </tr> </tbody> </table>		Year Group			Total	9	10	11	Boys			125	407	Girls		123			Total	303	256		831
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<p>Which is larger 0.8m^2 or $780,000\text{mm}^2$? Justify your answer.</p>	<p>Solve the simultaneous equations $4x + 3y = 41$ $2x + 5y = 31$</p>	<p>Here is a list of numbers... 31, 19, 22, 19, 36, 23, 41, 22, 17, 30 Find (a) The mode (b) The median (c) The mean (d) The range</p>	<p>Put the following in order of size from smallest to largest... $1.4, -\frac{5}{3}, -2\frac{1}{3}, -3, \frac{17}{30}$</p>	<p>A is directly proportional to the square of B. When $A = 72$, $B = 3$. Find the value of B when $A = 2$.</p>	<p>A bag has 4 red counters and 3 blue counters. Dominic takes a counter, at random, out of the bag, notes its colour and replaces it. He then takes a 2nd counter. (a) Draw a tree diagram to illustrate this. (b) What is the probability the 2 counters were different colours?</p>	 <p>What is the name of the lines labelled A, B and C?</p>																							