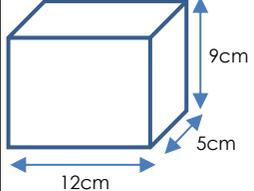
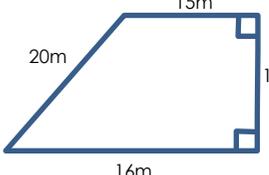
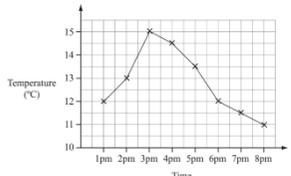


A BIT OF MATHS EACH DAY – SUMMER BOOST 2020 – FOUNDATION TIER

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
July		1 st	2 nd	3 rd	4 th	5 th
		<p>Frank says that "For any whole number n, the value of $6n - 1$ is always prime". Is Frank correct? Justify your answer.</p>	<p>(a) Write the following as normal numbers... (i) 7.41×10^5 (ii) 1.045×10^{-3} (b) Write the following as standard form numbers... (i) 0.00007001 (ii) 90140000</p>	<p>Make m the subject of the formula $r = 5m - n$</p>		<p>A cuboid has dimensions 9cm by 12cm by 5cm. (a) Find the volume of the cuboid (b) Find the total surface area of the cuboid. In each case, state the units of your answer.</p>
6 th	7 th	8 th	9 th	10 th	11 th	12 th
<p>Billy has x marbles in a bag. Write an expression for the number of marbles the following people have... (a) Charlie has 5 more than Billy (b) Danny has 8 fewer than Billy (c) Eric has twice as many as Charlie.</p>	<p>5, 11, 17, 23, 29, ... (a) Find the nth term for this sequence. Diane says that 185 is a number in this sequence. (b) Is Diane correct? Justify your answer.</p>	<p>(a) Write the number 40308 in words. (b) Write three hundred thousand and seventy using digits (c) Write down the value of the 7 in the number 17103</p>	<p>10, 11, 6, 3, 10, 11, 19, 15, 8, 13 For the above list of numbers, find... (a) the mode (b) the range (c) the median (d) the mean</p>	<p>Work out... $\sqrt{\frac{1.21-0.981}{12.3-8.421}}$ (a) Write down ALL the figures on your calculator (b) Write your answer to (a) correct to 2 significant figures</p>	<p>The population of the town of Swillsborough is declining at a rate of 8% per year. In 2018 the population was 75,440. (a) What will the population be in 2019? (b) If the population keeps declining at this rate, what will the population be in 2020?</p>	
13 th	14 th	15 th	16 th	17 th	18 th	19 th
<p>WITHOUT USING A CALCULATOR, work out the answer to the following... (a) $4\frac{2}{7} - 2\frac{3}{5}$ (b) $\frac{5}{8} \div 1\frac{3}{4}$</p>	<p>Martin writes down 4 numbers. Their mean is 8. The range is 6. The largest value is 11. There is no mode. Write down the four numbers.</p>	<p>The scale on a map is 1 : 25 000 (a) On a map, a distance measures 5cm. What is this in real life? Give your answer in kilometres. (b) In real life a distance is 2.2km. What would this be in the map in centimetres?</p>	<p>There were 37 people on a bus at the start of its journey. At the first stop 14 got off and 8 got on. At the second stop, 20 got off and 22 got on. How many people were on the bus after the 2nd stop?</p>	<p>WITHOUT USING A CALCULATOR and showing all your working, find the answer to 96×38</p>		<p>Find the perimeter and area of this trapezium.</p>
20 th	21 st	22 nd	23 rd	24 th	25 th	26 th
<p>WITHOUT USING A CALCULATOR and showing all your working, estimate the value of the following calculation... $\frac{88.52 \times 13.2}{0.312 \times 0.018}$</p>	<p>Use the information that $37 \times 9.4 = 347.8$ To write down the answer to (a) 370×94 (b) 0.37×94 (c) $3478 \div 0.094$ In each case show how you have used the given calculation.</p>	<p>(a) Write 240 as a product of prime factors (b) Write 400 as a product of prime factors Use your answers to (a) and (b) to find... (c) The LCM of 240 and 400 (d) The HCF of 240 and 400</p>	<p>WITHOUT USING A CALCULATOR and showing how you came by your answer, find 12% of £672</p>	<p>Draw the graph of $y = 5 - 2x$ Between $x = -2$ and $x = 4$</p>		<p>William recorded the temperature at his home every hour on a particular day. (a) What was the temperature at 4pm? (b) How much did the temperature rise from 2pm to 3pm? (c) When was the temperature 13.5°C? (d) At 11pm the temperature had dropped by 6°C. What was the temperature at 11pm?</p>
27 th	28 th	29 th	30 th	31 st		
<p>Write down the most appropriate metric unit to use the measure... (a) the length of a reading book (b) the amount of water on a teaspoon (c) the distance from Sheffield to London (d) the weight of a dog</p>	<p>Andy, Brenda and Charlotte share the monthly rent on their house in the ratio 5 : 3 : 7 The total rent is 840. How much do they each pay?</p>	<p>Solve the equations... (a) $8x = 72$ (b) $5x + 2 = 17$ (c) $4(3x - 1) = 9$</p>	<p>WITHOUT USING A CALCULATOR, find the answer to... (a) $12 - 19$ (b) $(-8) - 14$ (c) $9 + (-7)$ (d) $-11 - (-18)$ (e) $12 \times (-11)$ (f) $(-130) \div (-13)$</p>	<p>A circle has a circumference of 400cm. (a) What is its radius? (b) What is its area?</p>	<p>You have a long break between now and returning full time to school (hopefully in September). If you are going to be successful at the end of Year 11 in your GCSE exam, it is massively important that you keep ticking along and don't forget all the mathematics you have learned so far. The best way to learn mathematics is to DO mathematics and if you do a small bit (5-10 minutes) each day, it will make a big difference when you return to school. Try and use this calendar to give you some regular practice over the summer holidays. If you need help there are some fantastic videos at www.corbettmaths.com</p> <p style="text-align: center;">Enjoy the summer and keep doing some mathematics!</p>	

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31st					1st	2nd												
<p>(a) Write 16% as a decimal (b) Write 0.025 as a percentage (c) Write 0.6 as a fraction in its simplest form.</p>	<h1 style="color: red; font-size: 2em;">August</h1>		<p>You have a long break between now and returning full time to school (hopefully in September). If you are going to be successful at the end of Year 11 in your GCSE exam, it is massively important that you keep ticking along and don't forget all the mathematics you have learned so far. The best way to learn mathematics is to DO mathematics and if you do a small bit (5-10 minutes) each day, it will make a big difference when you return to school. Try and use this calendar to give you some regular practice over the summer holidays. If you need help there are some fantastic videos at www.corbettmaths.com</p> <p style="text-align: center;">Enjoy the summer and keep doing some mathematics!</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Age (A) in years</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>$15 < A \leq 25$</td> <td>44</td> </tr> <tr> <td>$25 < A \leq 35$</td> <td>56</td> </tr> <tr> <td>$35 < A \leq 45$</td> <td>34</td> </tr> <tr> <td>$45 < A \leq 55$</td> <td>19</td> </tr> <tr> <td>$55 < A \leq 65$</td> <td>7</td> </tr> </tbody> </table>	Age (A) in years	Frequency	$15 < A \leq 25$	44	$25 < A \leq 35$	56	$35 < A \leq 45$	34	$45 < A \leq 55$	19	$55 < A \leq 65$	7	<p>The table shows the distribution of ages of 160 employees of a steel company. (a) What is the modal group? (b) In which group does the median lie?</p>
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<p>A town has 15,400 inhabitants. 7,350 are male. (a) What percentage of the inhabitants are female? 14% if the inhabitants are below the age of 18, 12% are above the age of 65. (b) How many inhabitants are between 18 and 65 years old?</p>	<p>£1 = €1.10 £1 = 1.20 Swiss Francs Doreen is travelling within Switzerland. She buys a rail ticket and can pay either in Euro's or Swiss Francs. She pays either €20 or 22.30 Swiss Francs. Which currency should she use? Explain your answer.</p>	<p>Put the numbers in order of size, from smallest to largest, showing clearly how you did this...</p> <p style="text-align: center;">0.4, 38.7%, $\frac{5}{12}$, $\frac{19}{50}$</p>	<p>Tom measures the length of a book as 26cm to the nearest centimetre. What is the smallest and largest length the book could be?</p>	<p>There are 300 people in a cinema. $\frac{1}{6}$ of them are boys. 30% are girls. The rest are adults. Write the ratio of boys to girls to adults in its simplest form.</p>		<p>The diagram shows a 6-sided shape made up of a rectangle and a right angled triangle. (a) Calculate the total area of the shape (b) The perimeter is 37cm. How long is the length marked x ?</p>												
10th	11th	12th	13th	14th	15th	16th												
<p>A school buys 27 calculators for a total cost of £142.29. How much will 55 of these calculators cost?</p>	<p>Write each set of numbers in order, from smallest to largest: (a) 714, 89, 900, 1000, 830 (b) -8, 0, 3, 5, -11, -2 (c) 0.4, 0.175, 1, 0.0888, 0.22</p>	<p>Daniel works in a job that pays £9.75 per hour. (a) In one week he worked 25 hours. How much would he be paid? (b) Another week he was paid £331.50. How many hours did he work?</p>	<p>There are 1200 students in a school. 631 students are female. (a) How many male students are there? 15% of the students are in year 10. (b) How many are in year 10? (c) $\frac{3}{10}$ of the students are in year 11. How many is this?</p>	<p>Solve the following equations...</p> <p>(a) $\begin{pmatrix} x \\ 5 \end{pmatrix} + \begin{pmatrix} 8 \\ 3y \end{pmatrix} = \begin{pmatrix} 5 \\ 14 \end{pmatrix}$ (b) $2 \begin{pmatrix} x \\ -6 \end{pmatrix} - 3 \begin{pmatrix} -2 \\ y \end{pmatrix} = \begin{pmatrix} 14 \\ -y \end{pmatrix}$</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Input</th> <th>Output</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>3</td> </tr> <tr> <td>2</td> <td>.....</td> </tr> <tr> <td>5</td> <td>.....</td> </tr> <tr> <td>.....</td> <td>87</td> </tr> <tr> <td>.....</td> <td>135</td> </tr> </tbody> </table> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="margin-right: 10px;">Input \Rightarrow</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">x 12 \Rightarrow</div> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;">- 9 \Rightarrow</div> <div>Output</div> </div> <p>Complete the table on the left using the number machine shown above.</p>	Input	Output	1	3	2	5	87	135	
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<p>WITHOUT USING A CALCULATOR and showing all your working, find $185633 \div 23$</p>	<p style="text-align: center;">$v = u + at$</p> <p>If $u = 8.6$, $a = 1.2$ and $t = 11$, find the value of v.</p>	<p>Find the size of angle y. Give full geometric reasons.</p>	<p>Using a ruler and pencil... (a) Draw and clearly label an acute angle (b) Draw and clearly label an obtuse angle (c) Using also a protractor, draw a 220° angle, and clearly label it.</p>	<p>Work out the answer to...</p> <p>(a) $12 - 4 \times 2$ (b) $5 + 2 \times 5 - 4$ (c) $9 \times (3 + 8)^2$</p>		<p>Find the values of angles x and y, giving correct geometric reasons for each.</p>												
24th	25th	26th	27th	28th	29th	30th												
<p>From this list of numbers 1, 3, 5, 8, 12, 24, 36, 80 Write down... (a) an odd number (b) a multiple of 6 (c) a square number (d) a prime number (e) a factor of 40</p>	<p>Change...</p> <p>(a) 6.2m into cm (b) 340ml into l (c) 0.6kg into g (d) 1.1km into cm</p>	<p>The diagram shows a rectangular carpet. (a) What is the area of the carpet? (b) What is the perimeter of the carpet? State the units of your answers.</p>	<p>Paul has a bag with 3 blue counters and 7 red counters. He takes a counter out of the bag, notes its colour and puts the counter back in the bag. He repeats the process one more time. (a) Draw a tree diagram to show this (b) What is the probability he gets counters of different colour?</p>	<p>The number 12 and the number 15 bus leave the bus station together at 10am. Another number 12 leaves the bus station every 12 minutes. Another number 15 leaves the bus station every 15 minutes. When will both buses leave the station at the same time again?</p>	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Station</th> <th>Time of departure</th> </tr> </thead> <tbody> <tr> <td>Sheffield</td> <td>1135</td> </tr> <tr> <td>Meadowhall</td> <td>1141</td> </tr> <tr> <td>Chapeltown</td> <td>1147</td> </tr> <tr> <td>Barnsley</td> <td>1201</td> </tr> <tr> <td>Penistone</td> <td>1218</td> </tr> </tbody> </table> <p>(b) Doris arrives at Chapeltown station at 1128. How long will she have to wait for the train? (c) The journey from Penistone to Huddersfield takes a further 34 minutes. When will it arrive in Huddersfield?</p>	Station	Time of departure	Sheffield	1135	Meadowhall	1141	Chapeltown	1147	Barnsley	1201	Penistone	1218	<p>The table on the right shows the times a train, travelling between Sheffield and Huddersfield stops at particular stations on route. (a) How long does it take to travel from Sheffield to Barnsley? (b) Doris arrives at Chapeltown station at 1128. How long will she have to wait for the train? (c) The journey from Penistone to Huddersfield takes a further 34 minutes. When will it arrive in Huddersfield?</p>
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