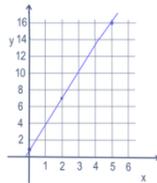
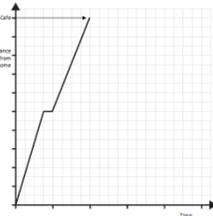
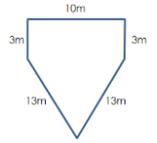
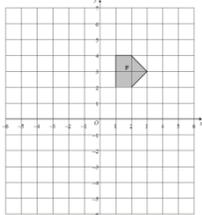
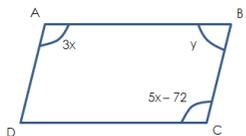
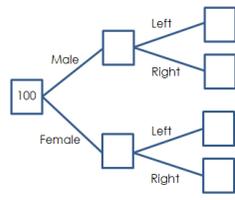
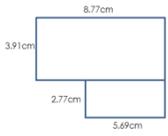
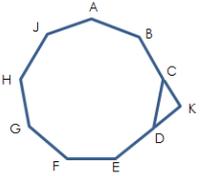


A BIT OF MATHS EACH DAY – FOUNDATION TIER – JANUARY 2018

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
1 st	2 nd	3 rd	4 th	5 th	6 th	7 th
<p>The population of the Isle of Blades has increased by 12% in 2016 because it is such a nice place to live. 720 extra people made the Isle their home in 2016. What was the population at the start of 2016?</p>	<p>Eric, Ernie and Des share £300. The ratio of the amount Eric gets to the amount Des gets is 2 : 7. Des gets £120 more than Eric. What percentage of the £300 does Ernie get?</p>	<p>The nth term of a sequence is $n^2 - 11$</p> <p>(a) Write down the first 5 terms of the sequence. (b) 133 is a term in this sequence. Which term is it?</p>	<p>Here are the ingredients needed to make 16 gingerbread men</p> <p>180g flour 40g ginger 110g butter 30g sugar</p> <p>Doris wants to make 40 biscuits. How much of each ingredient will she need?</p>	<p>Ann is making home-made crackers. She is putting a toy and a hat in each cracker. The toys come in packs of 12 and the hats in packs of 16. She wants to buy the same number of toys and hats.</p> <p>(a) how many packs of each will she buy? (b) each cracker requires 1 piece of card. How many pieces of card does she need?</p>	 <p>The graph on the left shows the fare charged by a taxi company in pounds on the y-axis against the length of the journey in miles.</p> <p>(a) Interpret the y-intercept (b) Interpret the gradient (c) Find the equation of the line in the form $y = mx + c$.</p>	
<p>(a) Simplify $3m^3 + 2m - m^3$ (b) Factorise $2x^2 + x$ (c) Make r the subject in $p = 5r - 7$</p>	<p>Alex is considering three companies (X, Y and Z) to rent a car from for 20 days. Each uses a formula to work out the cost (C) in £ using the number of days (D):</p> <p>X: $C = 27.5D$ Y: $C = 21.2D + 120$ Z: $C = 23D + 80$.</p> <p>Which company should Alex use? You must show how you came by your answer.</p>	<p>(a) Change 4000mm into cm (b) Change 4000mm² into cm² (c) Change 4000mm³ into cm³.</p>	<p>(a) x has been rounded to the nearest 10 to give 460. Find the bounds of accuracy of x. (b) y has been rounded to 3 decimal places to give 2.113. Find the error interval for y.</p>	<p>(a) Write $\frac{13}{20}$ as a percentage (b) Find 35% of £140 (c) Find $\frac{4}{7}$ of 224kg (d) Find 0.2×0.06</p>	 <p>Alan left home at 12noon to go for a cycle ride. He cycled at a constant speed and stopped for a 15minute break. He then cycled at a constant speed of 10km/hr until he reached a café at 2pm. He stopped at the café for 45 minutes. He then cycled home at an average speed of 16km/hr.</p> <p>(a) How far had he travelled when he had his first break? (b) Complete the graph – when does he arrive home?</p>	
<p>(a) Write 400 as a product of prime factors (b) Write 480 as a product of prime factors (c) Hence or otherwise find the highest common factor (HCF) of 400 and 480</p>	 <p>The diagram shows a pentagon with one line of symmetry. Find its area.</p>	<p>Solve the following equations...</p> <p>(a) $6x - 9 = 15$ (b) $2x + 3 = 5x - 8$ (c) $4(x - 3) = 2(4 - 3x)$</p>	<p>On Monday Dawn travelled by train from Sheffield to London. She set off at 09:35 and arrived in London at 12:05. The average speed of the train was 106 mph.</p> <p>On Wednesday, Rachael did the same journey, setting off at 09:35. Her train was diverted via Birmingham which meant she had to travel an extra 67 miles. She arrived in London at 13:35. What is the difference in the average speed of the two train journeys?</p>	<p>Dianne and Dave split some money in the ratio 2 : 7. Dave received £126. How much money did they split?</p>	 <p>(a) On the grid, translate shape P using the vector $\begin{pmatrix} -4 \\ -3 \end{pmatrix}$. Label the new shape Q. (b) On the grid, translate shape Q using the vector $\begin{pmatrix} -2 \\ 5 \end{pmatrix}$. Label the new shape R. (c) Write down the column vector that would translate P directly onto R.</p>	
<p>Evaluate $4\frac{4}{7} - 2\frac{3}{8}$</p>	<p>James is going to cover his rectangular floor with carpet tiles. His floor measures 4.8m by 7.2m. Each tile measures 80cm by 60cm. He decides to tile with a mix of red, white and black tiles. $\frac{3}{8}$ of the tiles are to be red. White and black are in the ratio 4:5. Assuming there are no gaps, how many of each colour will he need?</p>	 <p>ABCD is a parallelogram. Find the value of x and y.</p>	<p>Factorise</p> <p>(a) $12x^2 - 15x$ (b) $x^2 + 11x - 60$ (c) $x^2 - x - 56$</p>	<p>Evaluate $\frac{1}{2} \div \frac{2}{5}$</p>	 <p>In a room there are 100 people. 42 are female. 18 of the people in the room are left handed. 45 of the males are right handed.</p> <p>(a) Complete the frequency tree. (b) What percentage of the men are left handed? (c) What is the probability one woman picked at random is left handed?</p>	
<p>(a) Expand $4(2f + 9)$ (b) Expand $(2x + 1)(3x - 2)$</p>	 <p>The shape on the left is made up of two rectangles. (a) Estimate the total area of the shape. (b) Is your answer to part (a) an underestimate or over-estimate? Give a reason for your answer.</p>	 <p>ABCDEFGHK is a regular nonagon (9 sides). EDK and BCK are straight lines. Work out the size of angle CKD. You must show how you got your answer.</p>	<h1 style="color: red; font-size: 2em;">January</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>	
					31 st December 2016	1 st January 2017