

7<sup>th</sup> November 2016

Dear Parent/Carer

**Year 10 (P-band) - A Little Bit of Maths Every Day**

As you are aware your child will be sitting his/her final GCSE exam in the summer of 2018. This year there have been changes to the Maths GCSE, which mean the exam students will be sitting in future years is more challenging and demanding than in previous years. In order to give our students every chance of success in their GCSE, we are hoping for some support from you!

The only way to improve skills in maths is to **do maths**, therefore every month we will send out a calendar with a 'question a day'. We hope that you will work with your child to answer these questions and support their work towards this vital qualification. Solutions to the questions for the previous month will also be provided. It is really important that this is not seen as extra homework but viewed in a positive way; we want students to develop more confidence in their ability which in turn will help them to develop a 'can-do' attitude towards their maths lessons.

To complement this resource we have also subscribed to the website [www.mathswatch.co.uk](http://www.mathswatch.co.uk) for which every student has an individual login allowing them to watch video tutorials to help support them with answering these questions.

Please contact me if you have any further questions with regards to this or any other aspect of maths.

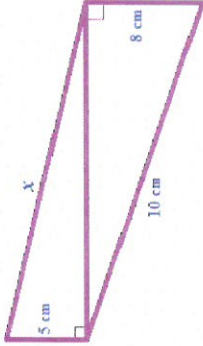
Yours faithfully

*J Barton*

Jessica Barton  
Subject Leader: Maths

Encs.

# A LITTLE BIT OF MATHS EVERY DAY ...

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
<p><b>NOVEMBER 2016</b></p> <p>1 Write 147 as a product of its prime factors</p>	<p>1 Without a calculator, work out: <math>0.12 \times 74</math></p>	<p>2 Solve by factorising <math>x^2 + 8x + 15 = 0</math></p>	<p>3 What is the square root of 100 million?</p>	<p>4 Work out 64 as a power of 2</p>	<p>5 The points (-1, 0) and (1, 4) are the diagonally opposite corners of a square. Work out the coordinates of the other two corners of the square</p>	<p>6</p>
<p>7 Write 147 as a product of its prime factors</p>	<p>8 Simplify <math>-8 \times f \times 3 \times g</math></p>	<p>9 Calculate: <math>\frac{3}{7}</math> of 28</p>	<p>10 Calculate <math>46 \times 10^{-2} + 32 \times 10^{-3}</math></p>	<p>11 Factorise <math>3x^3y^4 - 5xy^2</math></p>	<p>12 How many 20p coins make up £10,000? If each coin is 1.7 mm thick how tall would a stack of all these coins be? Give your answer to the nearest metre</p>	<p>13</p>
<p>14 Write 1 000 001 in standard form</p>	<p>15 Without a calculator, work out: <math>19\,476 - 18\,587</math></p>	<p>16 Explain why 21 is not a term in the sequence <math>3n + 5</math></p>	<p>17 Calculate <math>19876 \times 13</math></p>	<p>18 Expand and simplify <math>3t(t - 4) + 2t(3t - 1)</math></p>	<p>Calculate <math>x</math></p> 	<p>20</p>
<p>21 Simplify <math>4a^2 - 5a^2 + 3a + a</math></p>	<p>22 Make <math>a</math> the subject of the formula <math>v = u + at</math></p>	<p>23 If a square has an area of <math>100 \text{ cm}^2</math> what is its perimeter?</p>	<p>24 Work out 22.5% of £180</p>	<p>25 What is 150,000 less than 10 million?</p>	<p>26 Three friends share a flat: • Al pays 30% of the rent. • Bob pays 1/4 of the rent • Chris pays £225. How much do they pay altogether for the rent?</p>	<p>27</p>
<p>28 Expand &amp; simplify <math>(x + 3)(x + 5)</math></p>	<p>29 Solve <math>4t - 9 = -3</math></p>	<p>30 Calculate: <math>\frac{3}{7} + \frac{3}{5}</math></p>	<p><b>REMEMBER: THE BEST WAY TO REVISE MATHS IS TO "DO MATHS"!</b></p>			



# A LITTLE BIT OF MATHS EVERY DAY ...

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
<p>3 Write these in order of size 0.74 0.744 0.704 0.7 0.07 0.07, 0.7, 0.704, 0.744, 0.74</p>	<p>4 Simplify <math>5 \times f \times 2 \times g</math> <math>5 \times 2 \times f \times g = 10fg</math></p>	<p>5 Solve <math>6x - 5 = 16</math> <math>6x = 21</math> <math>x = \frac{21}{6} = \frac{7}{2}</math> <math>x = 3.5</math></p>	<p>6 Calculate <math>46 \times 10^2 + 32 \times 10^3</math> <math>\frac{460}{3200} \quad \frac{366 \times 10^3}{3660}</math></p>	<p>7 Factorise <math>3x^4 - 18x^2</math> <math>3x^2(x^2 - 6)</math></p>	<p>8 A machine makes 36 trophies every hour The machine makes trophies for 8 hours each day on 5 days of the week <math>36 \times 8 \times 5</math> week = <b>1440 a week</b> The trophies are packed into boxes that each holds 8 trophies How many boxes are needed for all the trophies made each week? <math>1440 \div 8 = 180</math> boxes</p>	<p>9 I am thinking of 4 numbers that are different factors of 80 I add these numbers together and get a number that is greater than 20 but less than 35 What were the 4 numbers I was thinking of? <b>1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 40</b></p>
<p>10 Write 0.00011 in standard form <math>1.1 \times 10^{-4}</math></p>	<p>11 Write 28 as a product of prime factors <math>28 = 2 \times 2 \times 7</math> <math>2^2 \times 7</math></p>	<p>12 <math>f</math> is a whole number Write down the largest value of <math>f</math> that satisfies <math>3f + 1 &lt; 1 + 12</math> <math>2f &lt; 11</math> <math>f &lt; 5.5</math></p>	<p>13 Calculate <math>19876 - 6789</math> <math>\frac{19876}{6789} \quad \frac{13087}{13087}</math></p>	<p>14 Expand and simplify <math>3(t-4) - 2(4t-1)</math> <math>3t - 14 - 8t + 2 = -5t - 12</math></p>	<p>15 Calculate <math>x</math> <math>\frac{53}{90} - \frac{143}{37}</math> <math>\frac{676}{-37} \quad \frac{39}{39}</math></p>	<p>16 </p>
<p>17 Simplify <math>4a^2 + 2a^2 - 3a^2 + 4</math> <math>3a^2 + 4</math></p>	<p>18 Make <math>v</math> the subject of the formula <math>v = u + at</math> <math>u = v - at</math></p>	<p>19 Emma walks for 6 hours and covers 15 miles What is her average speed? <math>\frac{15}{6} = 2.5</math> mph</p>	<p>20 Write 0.016 as a fraction <math>\frac{16}{1000} = \frac{8}{500} = \frac{4}{250} = \frac{2}{125}</math></p>	<p>21 Which is the smallest number? <math>0.038 \times 10^2</math> or <math>380 \times 10^{-3}</math> <math>3.8</math> or <math>380 \times 10^{-5}</math></p>	<p>22 Work out the shaded area Large <math>\odot = \frac{1}{4} \pi \times 10^2 = 25\pi</math> Small <math>\odot = \frac{1}{4} \pi \times 5^2 = 12.5\pi</math> area = <math>25\pi - 12.5\pi = 12.5\pi</math> <math>= 39.27 \text{ cm}^2</math> (2dp)</p>	<p>23 </p>
<p>24 Expand &amp; simplify <math>(x + 2)(x + 4)</math> <math>x^2 + 6x + 8</math></p>	<p>25 Simplify <math>\frac{(x+2)^2}{x^2} = \frac{x^2+4x+4}{x^2}</math></p>	<p>26 Calculate <math>\frac{1}{7} + \frac{3}{4}</math> <math>\frac{4}{28} + \frac{21}{28} = \frac{25}{28}</math></p>	<p>27 The ratio of red counters to blue counters is 5:9 What fraction of the counters are red? <math>\frac{5}{14}</math></p>	<p>28 Work out <math>5.6 \times 0.24</math> <math>1.344</math></p>	<p>29 Three students count their pencils Ben has 48 more pencils than Al Connor has four times as many pencils as Al The total number of pencils Al and Connor have is more than twice the number of pencils that Ben has Work out the least possible number of pencils that Al could have <math>A = x \quad B = x + 48 \quad C = 4x</math> <math>x + x + 48 &gt; 2(x + 48)</math> <math>2x &gt; 2x + 96</math></p>	<p>30 <math>3x &gt; 96</math> <math>x &gt; \frac{96}{3} = 32</math></p>
<p>31 Work out <math>426 \times 17</math> without a calculator <math>\begin{array}{r} 426 \\ \times 17 \\ \hline 2982 \\ 4260 \\ \hline 7242 \end{array}</math></p>	<p><b>REMEMBER: THE BEST WAY TO REVISE MATHS IS TO "DO MATHS"!</b></p>					