

4th November 2016

Dear Parent/Carer

Year 11 - A Little Bit of Maths Every Day

As you are aware this is your child's final year at Manor Croft Academy. This year there have been changes to the Maths GCSE, which mean the exam students will be sitting 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 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.

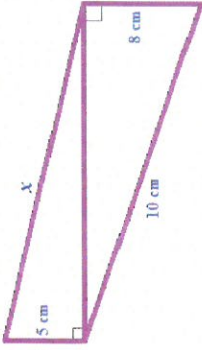
Yours faithfully

J Barton

Jessica Barton
Subject Leader: Maths

Encs.

A LITTLE BIT OF MATHS EVERY DAY ...

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
NOVEMBER 2016	Without a calculator, work out: 0.12×74	Solve by factorising $x^2 + 8x + 15 = 0$	What is the square root of 100 million?	Work out 64 as a power of 2	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.	
Write 147 as a product of its prime factors	Simplify $-8 \times f \times 3 \times g$	Calculate: $3 \frac{3}{7}$ of 28	Calculate $4.6 \times 10^{-2} + 32 \times 10^{-3}$	Factorise $3x^3y^4 - 5xy^2$	How many 20p coins make up £10,000? If each coin is 17 mm thick how tall would a stack of all these coins be? Give your answer to the nearest metre.	
Write 1 000 001 in standard form	Without a calculator, work out: $19\ 476 - 18\ 587$	Explain why 21 is not a term in the sequence $3n + 5$	Calculate 19876×13	Expand and simplify $3t(t - 4) + 2t(3t - 1)$	Calculate x	
Simplify $4a^2 - 5a^2 + 3a + a$	Make a the subject of the formula $v = u + at$	If a square has an area of 100 cm^2 what is its perimeter?	Work out 22.5% of £180	What is 150,000 less than 10 million?	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?	
Expand & simplify $(x + 3)(x + 5)$	Solve $4t - 9 = -3$	Calculate: $3 \frac{3}{7} + \frac{3}{5}$				

REMEMBER: THE BEST WAY TO REVISE MATHS IS TO "DO MATHS"!

A LITTLE BIT OF MATHS EVERY DAY ...

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
<p>3 Write these in order of size</p> <p>0.74 0.744 0.704</p> <p>0.07 0.0704 0.07004</p>	<p>4 Simplify</p> <p>$5 \times f \times 2 \times g$</p> <p>$5 \times 2 \times f \times g = 10fg$</p>	<p>5 Solve $6x - 5 = 16$</p> <p>$6x = 21$ $x = \frac{21}{6} = \frac{7}{2}$</p> <p>$x = 3.5$</p>	<p>6 Calculate</p> <p>$46 \times 10^2 + 32 \times 10^3$</p> <p>$\frac{460}{3660} \quad \frac{366 \times 10^3}{3660}$</p>	<p>7 Factorise</p> <p>$3x^3y - 18y^2$</p> <p>$3y^2(x^2y - 6)$</p>	<p>8 I am thinking of 4 numbers that are different factors of 60. 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?</p> <p>$15 + 1 + 2 + 3$ between 21 and 34</p> <p>1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30, 60</p> <p>A machine makes 36 trophies every hour. The machine makes trophies for 8 hours each day on 5 days of the week. $36 \times 8 \times 5$ week = 1440 a week. The trophies are packed into boxes that each holds 8 trophies. How many boxes are needed for all the trophies made each week? $1440 \div 8 = 180$ boxes</p>	<p>9 Calculate x</p> <p>$\frac{53}{143} = \frac{180}{37}$</p> <p>$x = 39^\circ$</p>
<p>10 Write 0.000011 in standard form</p> <p>1.1×10^{-4}</p>	<p>11 Write 28 as a product of prime factors</p> <p>$28 = 2 \times 2 \times 7$</p> <p>$2^2 \times 7$</p>	<p>12 f is a whole number. Write down the largest value of f that satisfies $3f + 1 < 1 + 12$</p> <p>$2f < 11$ $f < 5.5$</p>	<p>13 Calculate</p> <p>$19876 - 6789$</p> <p>$\frac{19876}{13087} \quad \frac{6789}{13087}$</p>	<p>14 Which is the smallest number</p> <p>0.038×10^2 or 380×10^{-3}</p> <p>$3.8 \quad 0.38$</p> <p>380×10^{-3}</p>	<p>16 Work out the shaded area</p> <p>Large $\odot = \frac{1}{4} \pi \times 10^2 = 25\pi$</p> <p>Small $\odot = \frac{1}{2} \pi \times 5^2 = 12.5\pi$</p> <p>area = $25\pi - 12.5\pi = 12.5\pi = 39.27 \text{ cm}^2$ (2dp)</p>	<p>21 Three students count their pencils. Al has 4 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.</p> <p>Work out the least possible number of pencils that Al could have.</p> <p>$A = 2 \quad B = 2 \times 48 \quad C = 4 \times 2$</p> <p>$3 \times 2 > 96 = 32$</p> <p>$2 \times 48 > 2 \times 2 + 96$</p> <p>$96 > 2 \times 2 + 96$</p>
<p>17 Simplify</p> <p>$4a^2 + 2a^2 - 3a^2 + 4$</p> <p>$3a^2 + 4$</p>	<p>18 Make v the subject of the formula</p> <p>$v = u + at$</p> <p>$u = v - at$</p>	<p>19 Emma walks for 6 hours and covers 15 miles. What is her average speed?</p> <p>$\frac{15}{6} = 2.5$ mph</p>	<p>20 Write 0.016 as a fraction</p> <p>$\frac{16}{1000} = \frac{2}{125}$</p>	<p>22 The ratio of red counters to blue counters is 5:9. What fraction of the counters are red?</p> <p>$\frac{5}{5+9} = \frac{5}{14}$</p>	<p>23 Work out the shaded area</p> <p>Large $\odot = \frac{1}{4} \pi \times 10^2 = 25\pi$</p> <p>Small $\odot = \frac{1}{2} \pi \times 5^2 = 12.5\pi$</p> <p>area = $25\pi - 12.5\pi = 12.5\pi = 39.27 \text{ cm}^2$ (2dp)</p>	<p>28 Work out</p> <p>5.6×0.24</p> <p>1.344</p>
<p>24 Expand & simplify</p> <p>$(x + 2)(x + 4)$</p> <p>$x^2 + 6x + 8$</p>	<p>25 Simplify</p> <p>$\frac{(x+2)^2}{x+2}$</p> <p>$x+2$</p>	<p>26 Calculate</p> <p>$\frac{1}{7} + \frac{3}{4}$</p> <p>$\frac{4}{28} + \frac{21}{28} = \frac{25}{28}$</p>	<p>27 The ratio of red counters to blue counters is 5:9. What fraction of the counters are red?</p> <p>$\frac{5}{5+9} = \frac{5}{14}$</p>	<p>30 Work out the shaded area</p> <p>Large $\odot = \frac{1}{4} \pi \times 10^2 = 25\pi$</p> <p>Small $\odot = \frac{1}{2} \pi \times 5^2 = 12.5\pi$</p> <p>area = $25\pi - 12.5\pi = 12.5\pi = 39.27 \text{ cm}^2$ (2dp)</p>	<p>31 Work out 426×17 without a calculator</p> <p>$\begin{array}{r} 426 \\ \times 17 \\ \hline 2982 \\ 2982 \\ \hline 7242 \end{array}$</p>	

REMEMBER: THE BEST WAY TO REVISE MATHS IS TO "DO MATHS"!