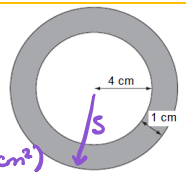
A LITTLE BIT OF MATHS EVERY DAY ...

JUNE 2017

MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
			1 A square has a side length of 8.2cm. What is the length of a diagonal of the square? $8.2^2+8.2^2 = 134.48$ $x = \sqrt{134.48} = 11.602$ 2dp	**2** 2,3,5,7,11,13 Find the product of the sixth prime number and the third triangular number. 13 × 6 = 78	**3** $\rho = \frac{F}{A}$ A box is on a table. The area of the box in contact with the table is 1500 cm^2. The pressure on the table is 28 newtons/m^2. Work out the force exerted by the box on the table. $F = 0.15 \times 28 = 4.2$ newtons	**4** $0.15 m^2$
5 Factorise fully $15xy^2 + 27x^2y + 9xy$ $3xy(5y + 9x + 3)$ $x^2 - 169$ $(x+13)(x-13)$	**6** Work out the value of $(3 \times 10^{-5}) \div (6 \times 10^{7})$ 5×10^{-13}	**7** Round 0.000608765 to three significant figures 6.09×10^{-4}	**8** Town B is on bearing of 065° from Town A. What is the bearing of Town A from Town B? $180 + 65 = 245°$	**9** Simplify fully $\frac{m^2 \times m^{-5}}{m^{-3}} = \frac{m^{-3}}{m^{-3}}$ $m^0 = 1$	**10** Work out the shaded area $\pi \times 5^2 - \pi \times 4^2$ $= 25\pi - 16\pi$ $= 9\pi\ cm^2$ $(28.27\ cm^2)$ 2dp 	**11**
12 What is the interior angle of a pentagon? 3 sides = 180° 4 " = 360° 5 " = 540° $540 \div 5 = 108°$	**13** Solve $4x - 7 = 21$ $4x = 28$ $x = 7$	**14** I invest £1200 in an account that pays compound interest of 1.5% per annum. How much interest will I earn in 3 years? 1.015 £54.81	**15** Write 185 as a product of its prime factors 5×37	**16** Factorise $x^2 - 7x + 12$ 1,12 2,6 3,4 $(x-3)(x-4)$	**17** x y The total cost of 3 pens and 4 pencils is £1.84 ① $3x + 4y = 1.84$ The total cost of 5 pens and 2 pencils is £1.76 ② $5x + 2y = 1.76$ (×2) Work out the cost of one pen and the cost of one pencil. ③ $10x + 4y = 3.52$ ④ $3x + 4y = 1.84$ $7x = 1.68$ $x = 0.24$ $y = 0.28$	**18**
19 Change $4.2m^2$ into mm^2 1m 4.2m 1000×4200 4,200,000 mm^2	**20** What is the lowest common multiple of 8, 12 and 15? 8: 8 16 24 32 40 48 56 64 72 80 96 120 12: 12 24 36 48 60 72 84 96 108 120 15: 15 30 45 60 75 90 105 120 120	**21** Calculate: $\frac{2}{5} + \frac{3}{8} = \frac{31}{40}$	**22** Expand and simplify $(2x - y)(3x + 2y)$ $6x^2 + xy - 2y^2$ $3y^2(2x - 3)$ $6y^2x - 9y^2$	**23** A number "x", is rounded to 9.5 correct to 2 significant figures. What is the error interval of x? $9.45 \leq x < 9.55$	**24** There are a total of 120 counters in a box. There are three times as many red counters as blue counters. Vicky takes one third of the red counters from the box. Oliver takes 80% of the blue counters from the box. Work out the ratio of the number of red counters to the number of blue counters now in the box. 120 R B 90 30 $\frac{1}{3}$ of 90 = 30 24 ← R : B 60 : 6 10 : 1	**25**
26 Simplify $4(x + 3) - 2(x - 2)$ $4x + 12 - 2x + 4$ $2x + 16$	**27** Find the median: 12, 14, 11, 9, 13, 15, 17, 10, 12 9 10 11 12 12 13 14 15 17 12	**28** What is the surface area of a cube with side length 3cm? 3 3 1 face: $9cm^2$ $9 \times 6 = 54 cm^2$	**29** A water container has 19.5 litres of water in it. A cup holds 210 ml of water. How many cups of water can be filled from the water container? $19500 \div 210 = 92.857...$ 92 cups	**30** Is 150 a term in the sequence? $n^2 + 3$. $n^2 + 3 = 150$ $n^2 = 147$ $n = 12.12...$ No, n is not a whole number so 150 is not in the sequence	**REMEMBER: THE BEST WAY TO REVISE MATHS IS TO "DO MATHS"!**	