

MATHS H.W -IGCSE

- 1] If A is divided by B the result is $\frac{2}{3}$. If B is divided by C the result is $\frac{4}{7}$. What is the result if A is divided by C?
- 2] Over the course of numbering every page in a book, a mechanical stamp printed 2,929 individual digits. How many pages does the book have?
- 3] What is the smallest number divisible by 1, 2, 3, 4, 5, 6, 7, 8 and 9?
- 4] This problem is about dividing with a remainder. As an example of this, when 29 is divided by 6 the answer is 4 and the remainder is 5. When a whole number x is divided by 5, the answer is y and the remainder is 4. When x is divided by 4, the answer is v and the remainder is 1. Can you write an equation expressing y in terms v ?
- 5] Five numbers are arranged in order from least to greatest: x, x^3, x^4, x^2, x^0 Where does $-x^{-1}$ belong in the list above?
- 6] Explain why the 1st of March is always on the same day of the week as the 1st of November Make a deduction about the day of the week that 31st May falls on compared to the 1st August.
- 7] A ball is dropped and bounces up to a height that is 75% of the height from which it was dropped. It then bounces again to a height that is 75% of the previous height and so on. How many bounces does it make before it bounces up to less than 20% of the original height from which it was dropped?
- 8] p and q are two numbers each greater than zero. $\sqrt{p^2 + 5q} = 8$ $\sqrt{p^2 - 3q} = 6$ Find the values of p and q .
- 9] You have eight coins that all look identical but only one is solid gold. The solid gold coin weighs slightly more than the fakes. You can use the balance only twice. How can you work out which is the real gold coin?
- 10] Sixteen pipes, each with a diameter of 10cm, are fastened tightly together with a metal band. How long is the band?
- 11] Choose any three consecutive numbers. Multiply the first number by the third number. Square the second number. What do you notice? Is this true for any three consecutive numbers? Can you prove why this is true?
- 12] Always Fives Marek is investigating even numbers. He finds out that if you pick an even number and multiply it by three and then subtract half of the original number, you always get a multiple of five. Explain why this happens.

13] Can you draw it? – Description 1 Triangle ABC has a right angle at C. AC is the shortest side of triangle ABC. M is the mid-point of the side AB. N is the midpoint of the side BC D is a point outside of the triangle ABC DMN is an equilateral triangle. Draw a diagram showing what the two triangles ABC and DMN could look like. Can you draw it?

14] Description 2 Triangle ABC has a right angle at B. Triangle LMN has a right angle at M Triangle PQR has a right angle at Q M is the mid-point of AC L is the mid-point of BC N lies outside the triangle ABC P is the mid-point of MN Q is the mid-point of LN R Lies outside of triangle LMN but inside of triangle ABC Draw a diagram showing what the three triangles ABC, LMN and PQR could look like.

15] Mei-Ling from Singapore was preparing to go to South Africa for 3 months as an exchange student. She needed to change some Singapore dollars (SGD) into South African rand (ZAR). Question 1: Mei-Ling found out that the exchange rate between Singapore dollars and South African rand was: $1 \text{ SGD} = 4.2 \text{ ZAR}$ Mei-Ling changed 3000 Singapore dollars into South African rand at this exchange rate. How much money in South African rand did Mei-Ling get?