

Summer maths puzzle pack for IB Maths

IB Math Revision · IB Maths SL and HL (AA and AI) · Student sheet

Name _____

Class _____

Date _____

No calculator needed.

Starter (5 minutes)

1. Find the next term: 1, 1, 2, 3, 5, 8, ...
2. A brick weighs 1 kg plus half a brick. How much does a brick weigh?
3. Work out $1 + 3 + 5 + \dots + 99$.

Main activity (35 minutes)

Task A: Number puzzles

Look for a pattern before you calculate.

- a. What is the last digit of 7^{100} ?
- b. How many zeros are there at the end of $25!$ ($25 \times 24 \times \dots \times 1$)?
- c. Find every positive whole number n for which $n^2 - 1$ is prime.

Task B: Logic puzzles

Write an equation, or try and improve.

- a. Ana is 3 times as old as her brother. In 5 years she will be twice as old as him. How old are they now?
- b. A farm has chickens and goats: 20 heads and 56 legs. How many goats are there?
- c. Three consecutive whole numbers add to 252. Find the largest.

Task C: Counting and chance

Count carefully: list a few cases first.

- a. Ten friends each shake hands once with every other friend. How many handshakes is that?
- b. Two fair dice are rolled. Find the probability that they show the same number.
- c. How many different arrangements are there of the letters of LEVEL?
- d. How many squares of any size are there on an 8×8 chessboard?

Extension

1. Prove that the sum of the first n odd numbers is n^2 .