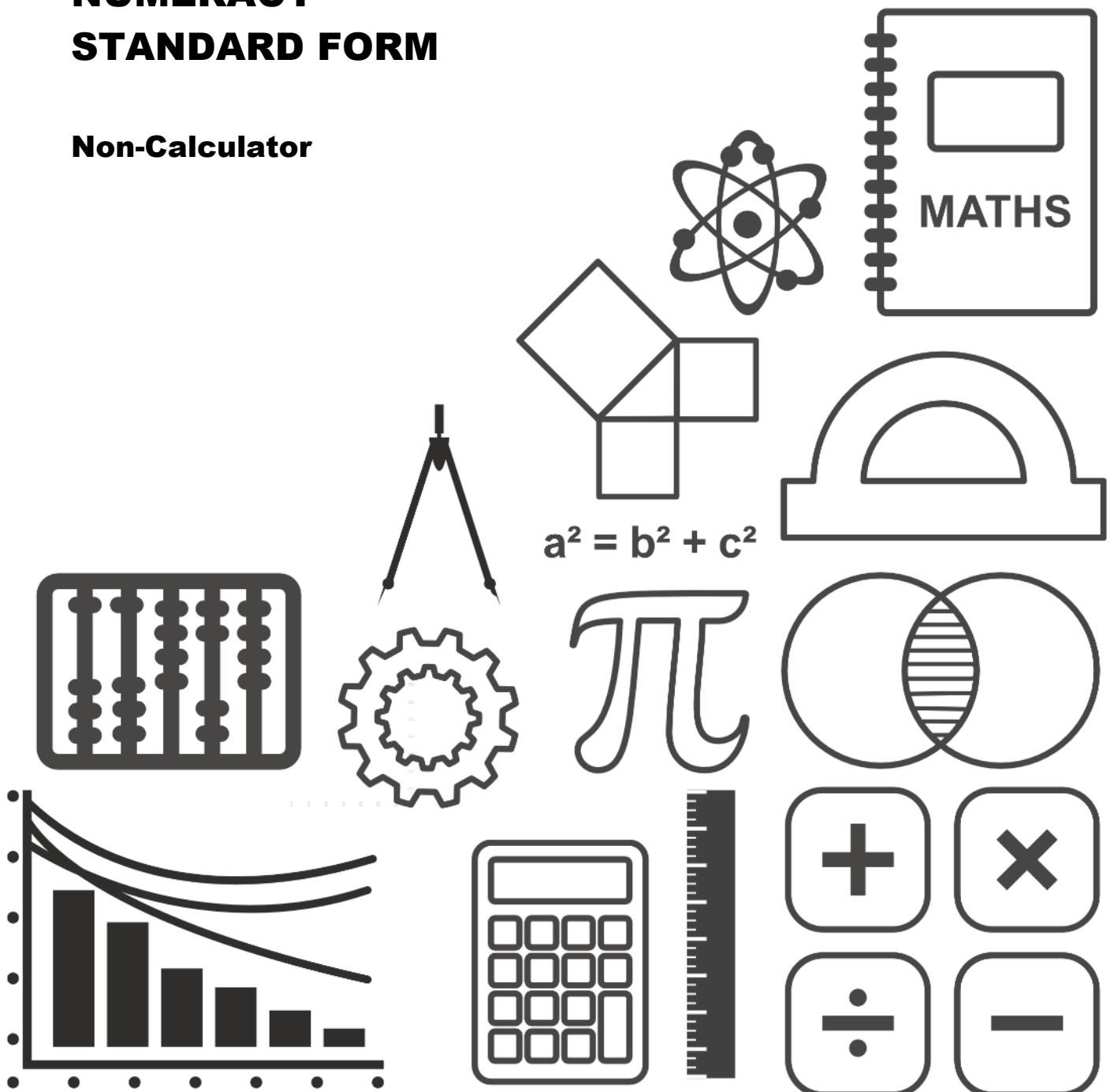


# MATHSDIY

## GCSE TOPIC BOOKLET NUMERACY STANDARD FORM

Non-Calculator



1. You are given that:  
 1 gigalitre = 1 000 000 m<sup>3</sup>  
 1 megalitre = 1 million litres

Lake Vyrnwy is a reservoir in mid Wales.

- (a) Lake Vyrnwy can release between 25 and 45 megalitres of water per day from the dam.



The lake also supplies water through underground pipes to another reservoir at a rate of 230 000 m<sup>3</sup> per day.

- (i) How many litres are there in 25 megalitres?  
 Circle your answer.

[1]

$25 \times 10^8$        $25 \times 10^{-6}$        $25 \times 10^7$        $2.5 \times 10^6$        $2.5 \times 10^7$

.....

.....

.....

- (ii) Which is the best estimate for the volume of water passing through the underground pipes **per hour**?  
 Circle your answer.

[1]

8500 m<sup>3</sup>      9600 m<sup>3</sup>      10 040 m<sup>3</sup>      10 400 m<sup>3</sup>      11 000 m<sup>3</sup>

.....

.....

.....

- (b) Lake Vyrnwy has a surface area of approximately 4 540 000 m<sup>2</sup>.  
 Lake Vyrnwy contains 59.7 gigalitres of water.



Calculate an estimate of the average depth of the lake.  
 Give your answer in metres.

[3]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Estimate of average depth is ..... m

2.

- (a) A standard piece of A4 paper is usually 0.08 mm thick.  
 What is 0.08 mm written in **metres** in standard form?  
 Circle your answer. [1]

$8 \times 10^4$        $8 \times 10^{-4}$        $8 \times 10^{-3}$        $8 \times 10^3$        $8 \times 10^{-5}$

.....

.....

- (b) A piece of card is 1 mm thick.  
 A stack of these pieces of card is  $3 \times 10^{-2}$  metres high.

- (i) Calculate how many pieces of card there are in the stack. [2]

.....

.....

.....

.....

.....

.....

.....

.....

.....

(ii) What assumption have you made in answering (b)(i)? [1]

.....

.....

.....

.....

- (c) In 2012 it was recorded that
- the total mass of the paper used for printing newspapers, in the world, was  $2.88 \times 10^7$  **tonnes**,
  - the world population was approximately  $7.2 \times 10^9$  people.

Use this information to calculate the mass of paper per person used to print newspapers in 2012.  
Give your answer in **kg per person**. [4]

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Mass of paper: ..... kg per person