

**YEAR 9**

Indices and Standard Form

Leave your answers in index form where the question is written in index form. In standard form the first number must be at least 1 and less than 10.

Name: _____ Date: _____ Score: _____

Section A · The index laws

Multiply: add the powers. Divide: subtract them. Power of a power: multiply them.

① $3^4 \times 3^2$

② $5^7 \div 5^4$

③ $(2^3)^2$

④ 7^0

⑤ $a^5 \times a^3$

⑥ $a^9 \div a^4$

Section B · Working them out

Write each one as an ordinary number or a fraction.

① 2^5

② 10^4

3 3^4

4 6^3

5 4^{-1}

6 2^{-3}

Section C • Standard form

$A \times 10^n$, where $1 \leq A < 10$.

1 Write 45 000 in standard form.

2 Write 0.0032 in standard form.

3 Write 7 200 000 in standard form.

4 Write 0.000 81 in standard form.

5 Write 6.1×10^3 as an ordinary number.

6 Write 2.5×10^{-2} as an ordinary number.

Section D • Calculating in standard form

Deal with the numbers and the powers separately.

1 $(3 \times 10^4) \times (2 \times 10^3)$

2 $(8 \times 10^6) \div (4 \times 10^2)$

3 $(5 \times 10^3) + (6 \times 10^3)$

4 $(1.2 \times 10^5) \div (3 \times 10^2)$
