

## Write Numbers in Standard Index Form & Understand the Calculator Display - NA7

**Standard Index Form (SIF)** means a number written like:

Can be any number from 1 to anything less than 10. For example 3 or 3.25 but must not begin with zero, so NOT 0.35.

$$A \times 10^n$$

Can be any integer  
For example 3 or -3

### Example

Write  $1.345 \times 10^6$  as an ordinary number

**Hey Look...**  
6 noughts!

means  
this equals

$$1.345 \times 10^6$$

$$1.345 \times 1,000,000$$

$$1345000$$

### Strategy

Move the decimal point to the **right** by the number of places shown on the index above the 10. Add extra noughts if necessary.

### Example

Write  $1.345 \times 10^{-6}$  as an ordinary number

The negative index means '1 over'

means  
this equals

$$1.345 \times 10^{-6}$$

$$1.345 \times \frac{1}{1,000,000}$$

$$0.000001345$$

**Hey Look...**  
6 noughts!

### Strategy

Move the decimal point to the **left** by the number of places shown on the index above the 10. Add extra noughts if necessary.

### Your Turn!!

- a) Write  $2.45 \times 10^{-5}$  as an ordinary number.      b) Write  $3.14 \times 10^4$  as an ordinary number

### The challenge is to be able to do the reverse!!

### Example

Write 134000 in SIF.

The decimal place needs to be moved 5 places

This can be written as  $1.34 \times 100,000$   
Which is  $1.34 \times 10^5$ .

Optional step

### Example

Write 0.0013 in SIF.

The decimal place needs to be moved 3 places

This can be written as  $1.3 \times \frac{1}{1000}$   
Which is  $1.3 \times 10^{-3}$ .

### Strategy

Put a decimal point after the first integer. Count the number of times the decimal place has moved. Write this integer above the 10. For small numbers e.g. 0.02 use a negative index.

### Your Turn!!

- c) Write 120 in standard index form.      d) Write 0.0105 in standard index form.

## Discover how your Calculator Writes in SIF – NA7

### Your Turn!!

- e) Write this on the calculator:  $9,000,000 \times 9,000,000$ .  
The answer is 81,000,000,000,000 or  $8.1 \times 10^{13}$ .  
Your calculator is showing you its version of  $8.1 \times 10^{13}$

Study how your calculator displays this information.

### Your Turn Extra!!

- f) See if you can work out how to enter numbers into your calculator in SIF.  
Try entering  $8.1 \times 10^3$ . **Hint:** Use the EXP calculator button. Press 8.1 [EXP] 3 then [=], you should get 8100!

## RAPID 'ACID' TEST – Blank out the page above before answering these!

1. Write  $1.34 \times 10^4$  as an ordinary number.
2. Write 0.0134 in SIF.
3. Using your calculator, calculate  $1,234,000 \times 1,234,000$  and write your answer in SIF.