

# Standard Form

**How to ...** \* means you must include an explanation

\* One sheet of paper is  $9 \times 10^{-3}$  cm thick.

Mark wants to put 500 sheets of paper into the paper tray of his printer. The paper tray is 4 cm deep.

Is the paper tray deep enough for 500 sheets of paper.

You must explain your answer.

$$\begin{aligned} \text{Onesheet} &= 9 \times 10^{-3} \\ &= 0.009 \text{ cm} \\ \text{so 500 sheets} &= 500 \times 0.009 \\ &= 4.5 \text{ cm} \end{aligned}$$

The paper tray is only 4cm deep and 500 sheets would be 4.5cm so the tray isn't deep enough.

(3)

Now have a go yourself ...

**SORTED IT** - Convert into ordinary numbers:

- (a)  $5.239 \times 10^3$  (b)  $4.543 \times 10^4$  (c)  $9.382 \times 10^2$   
 (d)  $6.665 \times 10^6$  (e)  $1.951 \times 10^2$  (f)  $1.905 \times 10^5$   
 (g)  $8.34 \times 10^{-3}$  (h)  $2.541 \times 10^{-8}$  (i)  $1.01 \times 10^{-5}$   
 (j)  $8.88 \times 10^{-1}$  (k)  $9 \times 10^{-2}$  (l)  $5.05 \times 10^{-9}$

**NAILED IT** - Convert into standard form:

- (a) 65345 (b) 30000 (c) 420000  
 (d) 545000 (e) 26750.7 (f) 105000000  
 (g) 0.0078 (h) 0.00000672 (i) 780.5  
 (j) 0.0603 (k) 0.00000901 (l) 0.00601

**MASTERED IT** - work out

- (a)  $3.4 \times 10^5 \times 2.5 \times 10^7$  (b)  $8.4 \times 10^3 \times 2.1 \times 10^4$   
 (c)  $13.4 \times 10^5 \times 3.1 \times 10^7 \times 3$   
 (d)  $3.4 \times 10^5 + 2.1 \times 10^6$  (e)  $2 \times 10^4 - 2.1 \times 10^3$   
 (f)  $2 \times 10^4 - 2.1 \times 10^3$  (g)  $0.02 \times 10^{-3} + 4.6 \times 10^{-4}$

If  $p = 3.41 \times 10^6$  and  $q = 12.1 \times 10^{-2}$ . Find

- (h)  $p \times q$  (i)  $p \div q$  (j)  $2p \times 6q$   
 (k)  $p^2 \div q$  Give your answer in standard form

## Exam Questions

Q1. Work out  $3.2 \times 10^5 - 2.89 \times 10^4$   
Give your answer in standard form.

(3)

Q2.  $p = 5.4 \times 10^7$  and  $q = 3.5 \times 10^6$

Calculate the value of each of the following. Give all your answers in standard form.

(a)  $p \times q$

(2)

(b)  $5p + 8q$

(2)

(c)  $p - q$

(2)

Q3. On a Saturday 1.5 million copies of a newspaper are printed.

(a) Write 1.5 million in standard form.

(1)

(b) Each copy of the newspaper has 80 pages. Calculate the total number of pages printed on a Saturday. Give your answer in standard form.

(2)

(c) The total weight of the newspapers is  $3 \times 10^5$  kg. Calculate the weight of one newspaper. Give your answer in grams.

(3)

## Ready to be marked ?

### Checklist



Answer checked

Does it need to be in standard form?

### Keywords



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### Things to remember ...



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### What went well ...



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### Teacher comment ..