

Standard form calculations with a calculator

Starter

1. **(Review of last lesson)** Without using a calculator, find the value of:

(a) $(7 \times 10^6) \times (8 \times 10^{-9})$ (b) $(1.2 \times 10^{-5}) \div (9.6 \times 10^3)$
(c) $(7.1 \times 10^9) - (4.2 \times 10^8)$ (d) $(8.9 \times 10^{-5}) + (2.1 \times 10^{-6})$

Give your answers in standard form.

Notes

Thankfully, standard form calculations can be performed on a scientific calculator using the **EXP** or **$\times 10^x$** button and reading the display. These buttons are found on the bottom row of buttons.

To enter 7×10^6 : press 7 **EXP** 6 or 7 **$\times 10^x$** 6

When entering negative powers of 10, use the **(-)** button, usually found in the top section of the buttons on the left-hand side.

To enter 8×10^{-9} : press 8 **EXP** **(-)** 9 or 8 **$\times 10^x$** **(-)** 9

N.B. When entering standard form, do not press the **x^y** or **$\frac{\square}{\square}$** buttons.

E.g. 1 Check your answers to the starter questions by entering the calculations on your calculator.

(a) $(7 \times 10^6) \times (8 \times 10^{-9})$ (b) $(1.2 \times 10^{-5}) \div (9.6 \times 10^3)$
(c) $(7.1 \times 10^9) - (4.2 \times 10^8)$ (d) $(8.9 \times 10^{-5}) + (2.1 \times 10^{-6})$

Use your calculator to answer these questions, giving your answers in standard form.

E.g. 2 A country has a population of 8.32×10^7 people. There are 5.2×10^4 branches of the supermarket Spendalot in the country. How many people are there per Spendalot store?

Working: People per store = $8.32 \times 10^7 \div 5.2 \times 10^4 = 1600 = 1.6 \times 10^3$

E.g. 3 A film cost $\pounds 3.45 \times 10^8$ to make. It made $\pounds 8.9 \times 10^7$ at the box office. What was the loss made by the film?

Video: [Using your calculator with standard form](#)

[Solutions to Starter and E.g.s](#)

Exercise

9-1 class textbook: p133 M5.5 Qu 1-10
A*-G class textbook: p125 M5.5 Qu 1-9
9-1 homework book: p47 M5.5 Qu 1-10
A*-G homework book: p34 M5.5 Qu 1-10

Summary

To perform standard form calculations use the **EXP** or **$\times 10^x$** buttons.

To enter 7×10^6 : press 7 **EXP** 6 or 7 **$\times 10^x$** 6

When entering negative powers of 10, use the **(-)** button.

To enter 8×10^{-9} : press 8 **EXP** **(-)** 9 or 8 **$\times 10^x$** **(-)** 9

N.B. When entering standard form, do not press the **$\times y$** or **\times** buttons.

