

Calculating in Standard Form

Without using a calculator, work out the following, giving your answer in standard form.

- (a) $(2 \times 10^5) + (3 \times 10^4)$
- (b) $(6.2 \times 10^7) - (5 \times 10^6)$
- (c) $(3 \times 10^{-2}) + (7 \times 10^{-1})$
- (d) $(1.5 \times 10^{-4}) - (9 \times 10^{-5})$
- (e) $(2 \times 10^5) \times (3 \times 10^4)$
- (f) $(6 \times 10^8) \div (2 \times 10^4)$
- (g) $(1.5 \times 10^{-4}) \times (3 \times 10^8)$
- (h) $(4.4 \times 10^7) \div (1.1 \times 10^{-3})$

- (a) 2.3×10^5
- (b) 5.7×10^7
- (c) 7.3×10^{-1}
- (d) 6×10^{-5}
- (e) 6×10^9
- (f) 3×10^4
- (g) 4.5×10^4
- (h) 4×10^{10}

Using a calculator, work out the following, giving your answer in standard form.

- (a) $(1.25 \times 10^5) + (3.4 \times 10^5)$
- (b) $(2.7 \times 10^{-4}) - (1.28 \times 10^{-5})$
- (c) $(3.87 \times 10^{-2}) \times (5.3 \times 10^4)$
- (d) $\frac{4.1 \times 10^6}{1.73 \times 10^{-2}}$
- (e) $(7.3 \times 10^{-2})^2$
- (f) $\sqrt{(3.6 \times 10^{14})}$

- (a) 4.65×10^5
- (b) 2.572×10^{-4}
- (c) 2.0511×10^3
- (d) 2.37×10^8
- (e) 5.329×10^{-3}
- (f) 6×10^5

(a) Given that $F = ma$, find F when $m = 1.2 \times 10^{-12} \text{ g}$ and $a = 4.5 \times 10^9 \text{ m/s}^2$.

(b) Denmark has a population of 5.36×10^6 and Jamaica has a population of 2.56×10^6 . How many more people live in Denmark than in Jamaica?

- (a) 5.4×10^{-3}
- (b) 2.8×10^6

(a) The mass of Saturn is 5.686×10^{26} tonnes and the mass of the Earth is 6.04×10^{21} tonnes. How many times heavier is Saturn than Earth?

(b) In 2009 the world population was 6.77×10^9 . In 2019 it was 7.73×10^9 . Calculate the percentage increase in population between 2009 and 2019.

- (a) 94139 times
- (b) 14.2% (1dp)