

16. If $a = 2.4 \times 10^{-4}$ and $b = 4 \times 10^{-2}$, find the value of
- (a) $b - a$, giving your answer in decimal, correct to two significant figures,
 (b) b^3 , giving your answer in the form $A \times 10^n$, where $1 \leq A < 10$ and n is an integer,
 (c) $\frac{5a}{3b}$, giving your answer in ordinary notation.
17. Given that $x = 8 \times 10^{-3}$ and $y = 5 \times 10^{-7}$, find $\frac{x^2}{y} - 8y$ in the form $A \times 10^n$, where $1 \leq A < 10$ and n is an integer.
18. Without using a calculator, but with essential workings, arrange the numbers
 (a) 6.4×10^{-8} , 2.8×10^{-7} , 43×10^{-9} in descending order,
 (b) $2^3 \times 3^7 \times 7^6$, $2^5 \times 3^6 \times 7^5$, $2^4 \times 3^7 \times 7^5$ in ascending order.
19. Given that $a = 6.4 \times 10^7$, find the value of
 (a) $\sqrt{a}$,
 (b) $\sqrt[3]{a}$.
20. With the help of a calculator, express the following in standard form, giving the answers correct to three significant figures.
- (a) $84.3 \times 0.0418 \times 10^{-2}$
 (b) $\frac{1.7^3 + 2.1^2}{\sqrt[3]{11}}$
 (c) $\frac{1.48 \times 10^5 + 34.4 \times 10^4}{3.7 \times 10^{-3} \times 0.061 \times 10^{-4}}$
 (d) $\frac{(12.3 \times 10^{-2})^{-4}}{127^{0.5} \times 3^{-7}}$
 (e) $\frac{4.1 \times 10^3}{\sqrt{5.75} - 17\pi}$
 (f) $\sqrt[3]{\left(\frac{8}{5}\right)^2 \times \left(3\frac{1}{2}\right)^2} \div \left(\frac{4}{7}\right)^4$
 (g) $\frac{0.0413}{1} \times \frac{1}{2} \div [\pi + (0.31)^{-2}]$
 (h) $\frac{0.83^4 \times 5 + 4 \times 2.31^3}{6.1^2 \times \sqrt{5.21} - 3 \times \sqrt[3]{48.84}}$
 (i) $\frac{27^{-\frac{1}{4}} + \left(\frac{3}{2}\right)^{-6} \times \left(\frac{5}{7}\right)^3}{4^{\frac{2}{3}} - 3^{\frac{1}{3}}}$
 (j) $\frac{3.87 \times 10^3 \times 2.09 \times 10^{-2} \times 3.56}{4 \times 0.365 \times 10^4 \div 2.61 \times 10^{-1}}$
 (k) $\left(5\frac{7}{9}\right)^{-3} \times (3.125)^{-2} \div \left(\frac{7}{3}\right)^5$
21. Express 3.95×10^5 m
 (a) as a whole number, correct to two significant figures,
 (b) (i) as a percentage,
 (ii) in km,
 giving your answers in standard form.
22. Find x in each of the following.
 (a) $2^{10} \times 2^x = 4^5$
 (b) $\left(\frac{4}{3}\right)^x = 1\frac{9}{9}$

owing, expressing

10^{-7}

$8 + 8 \times 10^{-2}$

$= 81$