

Week 1: Basic Algebra

Try these exercises now, do not use a calculator, and try to solve the exercises without help

1. Write $2\frac{3}{8}$ as a decimal.
2. What do each of the digits after the decimal point in the number 12.5467 represent?
3. Do you expect your answer to $\frac{3}{8} \times \frac{4}{5}$ to be greater than $\frac{1}{2}$? Why or why not? Calculate the answer.
4. Will the result of $\frac{7}{10} + \frac{3}{5}$ be greater than 1? Calculate the answer.
5. Calculate $\frac{11}{20} - \frac{1}{3}$.
6. Simplify $5^7 \div 5^4$.
7. Calculate a value for 4^{-2} .
8. Calculate the value of $7^0 + 12^1$.
9. Evaluate $2x^3$ when $x = -1$
10. Simplify $2x^3 + x^3 + x^4 + x^2 \times x + \frac{x^2}{x^6} - (x^2)^3$
11. Explain the distinction, if any, between each of the following expressions, and simplify if possible. (a) $4x - 2x$, (b) $4x(-2x)$, (c) $4x(2x)$, (d) $-4x(2x)$, (e) $-4x - 2x$, (f) $(4x)(2x)$
12. Explain the distinction between $(x + 3)(x + 2)$ and $x + 3(x + 2)$.
13. Explain why x^2 is a factor of $4x^2 + 3yx^3 + 5yx^4$ but y is not, then factorise the $4x^2 + 3yx^3 + 5yx^4$
14. Factorise (a) $6x^2 + 7x - 5$ and (b) $4x^2 - 9$