Week 2: Algebra Basics

Try these exercises now, do not use a calculator until question 12, and try to solve the exercises without help

1. Evaluate $2x^3$ when $x = -1$

2. Simplify $2x^3 + x^3 + x^4 + x^2 \times x + \frac{x^2}{x^6} - \left(x^2\right)^3$

3. Explain the distinctiom, 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) $(4x)(2x)$.

4. Explain the distinction between $(x + 3)(x + 2)$ and $x + 3(x + 2)$.

5. Explain why x^2 is a factor of $4x^2 + 3yx^3 + 5yx^4$ but y is not, then factorise the $4x^2 + 3yx^3 + 5yx^4$

6. Factorise (a) $6x^2 + 7x - 5$ and (b) $4x^2 - 9$

7. Simplify, if possible, (a) $\frac{abc}{3ac}$ and (b) $\frac{3ab}{a+b}$

8. Simplify, if possible, $\frac{x^2+2x-15}{2x^2-5x-3}$

9. Evaluate $(0.2)^4$

10. Evaluate $125^{-\frac{1}{3}}$

11. Evaluation $169^{0.5}$

12. The rabbit population in Douglas County, which is currently 8,200 rabbits, is increasing by 15% each year. How many rabbits will there be in 3 years?