Key Points to Remember:

1. A **polynomial** is a function of a variable (x, say), which is built just from addition, subtraction, multiplication, and raising x to positive whole-number powers. For instance, $8x^3 - 7x^2 + 3$ is a polynomial, but $\sin(x) + x^3$ is not, because of the sin term.
2. The **degree** of a polynomial is the largest power of the variable appearing. For instance, the degree of $-x^3 + 4x^2 - 2x$ is 3.
3. A **root** of a polynomial $f(x)$ is a number a such that $f(a) = 0$ - *i.e.*, substituting a in place of x gives 0.
4. A polynomial $f(x)$ is a **factor** of another polynomial $g(x)$ if $f(x)$ can be multiplied by a polynomial to make $g(x)$ - just like a whole number f is a factor of another whole number g if f can be multiplied by some other number to make g.
5. Any degree-n polynomial can be divided by a degree-1 polynomial to give a degree-$(n-1)$ polynomial and a constant remainder.
6. To divide one polynomial by another, use long division, starting with the largest power and working down.
7. The **Polynomial Factor Theorem** says that a number a is a **root** of a polynomial if and only if $(x - a)$ is a **factor** of that polynomial.