### Chapter 1

* in any polynomial expression, the exponents on the variable must be the whole numbers.
* the degree of the function is the highest exponent in the expression.
* the domain of a polynomial function is the set of real numbers and the range may be all real numbers, or it may have a lower bound or upper bound.

### Chapter 2

* the characteristics of the odd degree parent functions:
  + ,
  + opposite end behaviour: ,
  + odd symmetry
  + Interval of increase:
* the characteristics of the odd degree functions:
  + the number of turning points
    - minimum: 0
    - maximum: degree subtract one
  + the number of x-intercepts:
    - minimum: 1
    - maximum: degree
  + the leading coefficient gives information on reflection
* the characteristics of the even degree parent functions are
  + ,
  + end behaviour: ,
  + even symmetry
  + Interval of decrease: . Interval of increase:
* the characteristics of the even degree functions:
  + the number of turning points:
    - minimum: 1
    - maximum: degree subtract one
  + the number of x-intercepts:
    - minimum: 0
    - maximum: degree
  + the leading coefficient gives information on reflection

### Chapter 3

* family of polynomial functions: a set of polynomial functions whose equations have the same degree and whose graphs have similar characteristics.
* when graphing zeros of polynomials. different orders for functions result in different types of zeros.
  + a factor of order 1 result in the graph passing through the x-axis
  + a factor of order 2 has a turning point of the zero
  + a factor of order 3 has an inflection point. This s where the interval of increase/decrease does not change

### Chapter 4

* use the mapping rule and a point on the parent function to find the corresponding point on the function that has transformations. Make sure that you substitute the correct value from the function into the mapping rule.

### Chapter 5

* two strategies to divide polynomials: polynomial and synthetic division.
* synthetic division can only be used when the divisor is linear.
* when using polynomial or synthetic division, terms should be arranged in descending order of degree in both the divisor and the dividend. Zeros must be the coefficient of any missing powers of the variable in both the divisor and the dividend.

### Chapter 6

* a value is a factor of a polynomial expression only if it causes after substitute the value into
* to factor a polynomial, ,
  + use the factor theorem to determine a factor of f(x)
  + then use the synthetic division to determine other factors
* not all polynomials are factorable

### Chapter 7

* difference and sum of cubes
* is the sum of cubes and can be factored as
  + =
* is the difference of cubes and can be factored as
  + =