

### 3.2 Sum and Difference of Cubes

Ex 1 Solve  $x^3 = 1$

Consider that this could be rearranged to  $f(x) = x^3 - 1$  and therefore a couple of implications could be considered.

- There could be as many as 3 roots.
- It could be written as (linear)(quadratic) through factoring.

Ex 2 Factor  $f(x) = x^3 - 1$

This can be extended to any expression in the form  $a^3 - b^3 = \underline{\hspace{10cm}}$

Ex 3 Solve  $x^3 = -8$

Ex 4 Factor  $f(x) = x^3 + 8$

Therefore  $a^3 + b^3 = \underline{\hspace{10cm}}$

Ex 5 Factor the following:

a.  $x^3 + 64$

b.  $x^3 - 27$

c.  $8x^3 - 1$

d.  $4x^3 + 32$

e.  $(m + n)^3 - (m - n)^3$

p.182#2,3,4,5

