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 $a^3 - b^3 =$ _____

Ex 3 Solve $x^3 = -8$

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

Therefore $a^3 + b^3 =$ _____

Ex 5 Factor the following:

a. $x^3 + 64$

b. $x^3 - 27$

c. $8x^3 - 1$

d. $4x^3 + 32$

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

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