2) $(m^4 - 3m^2 + m + 4) \div (m - 1)$

3) $(x^3 + 3x^2 - 4) \div (x + 2)$

Note: If the remainder when dividing a polynomial by $(x - a)$ is 0, then $(x - a)$ is a factor of the polynomial.

Example: Divide $P(x) = 3x^3 + 14x^2 + 13x - 6$ by $(x + 3)$ then factor $P(x)$ **completely**.

Homework problems:

Use synthetic division to divide:

1) $(3x^3 - x^2 + 2x + 5) \div (x + 2)$

2) $(y^4 - 2y^3 - 7y - 6) \div (y - 3)$

3) $(m^5 - 1) \div (m - 1)$