

Assignment 4

The Factor Theorem

Answer ALL questions in the spaces provided for your answer.

Give any fractions as a decimal correct to 1 d.p.

List factors in order e.g. $(x - 1)(x + 1)(2x - 1)(2x + 3)$

1. Find the values of k for which

(a) $x - 1$ is a factor of $3x^3 + 7x^2 - kx + 5$. $k =$ _____

(b) $x + 4$ is a factor of $x^3 + 5x^2 - kx + 48$. $k =$ _____

2. Given that $x - 1$ is a factor of the expression $x^3 - kx + 2$, find the value of k and the remainder when the expression is divided by $x - 2$.

$k =$ _____ Remainder = _____

3. Given that $x + 1$ and $x - 3$ are factors of the expression $x^4 + px^3 + 5x^2 + 5x + q$, find the values of p and q . Hence, find the other two factors of the expression.

$p =$ _____ $q =$ _____ Factors = _____

4. Factorize completely

(a) $x^3 - 5x^2 - x + 5$ _____

(b) $2x^3 + x^2 - 13x + 6$ _____