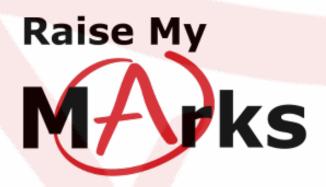
Factor Theorem 5



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Factor Theorem

x - p is a factor of f(x) if and only if f(p) = 0.

Factor Theorem Extended

A function,

$$f(x) = a_n x^n + a_{n-1} x^{n-1} + \dots + a_1 x + a_0$$

qx - p

has a factor,

if

$$f\left(\frac{p}{q}\right) = 0$$

where,

q divides a_n and p divides a_0 .



Exercises

- 1. Find a quadratic equation whose roots have the following sum and product,
 - a) sum = 3, product = 7
 - b) sum = 1/5 , product = -3/25
 - c) sum = -11, product = -2/3
 - d) sum = -6, product = 4
 - e) sum = -13/12, product = 1/4
- 2. Find the equation whose roots are each three times the roots of $3x^2 + 7x + 3 = 0$.