Remainder and Factor Theorem

Contents

[1. Why learn? 2](#_Toc81147227)

[2. Polynomials 2](#_Toc81147228)

[a. Coefficient: 2](#_Toc81147229)

[b. Degree: 2](#_Toc81147230)

[c. Value: 2](#_Toc81147231)

[3. Identities 3](#_Toc81147232)

[a. Equation 3](#_Toc81147233)

[b. Identical 3](#_Toc81147234)

[c. Solving – By comparing coefficients 3](#_Toc81147235)

[d. Solving – By Substitution 3](#_Toc81147236)

[4. Division of polynomials 4](#_Toc81147237)

[a. Long Division 4](#_Toc81147238)

[b. Synthetic Divisor (works for Linear Divisor) 4](#_Toc81147239)

[5. Remainder theorem 6](#_Toc81147240)

[a. Confirming the REMAINDER THOREM 6](#_Toc81147241)

[b. Exercise on REMAINDER THOREM 6](#_Toc81147242)

[6. Factor Theorem 7](#_Toc81147243)

[7. Solutions of Cubic Equation 7](#_Toc81147244)

## Why learn?

* Learn about Polynomials, meaning many terms in Greek
* A polynomial in the variable x is a collection of terms, each of the form where **a is a constant** and the power **n is a non-negative integer.**

## Polynomials

Example of polynomials:

Example of non-polynomials:

### Coefficient:

Example

### Degree:

### Value:

## Identities

### Equation

### Identical

### Solving – By comparing coefficients

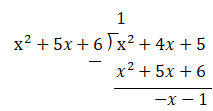
|  |  |
| --- | --- |
| 1 |  |

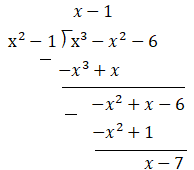
### Solving – By Substitution

|  |  |
| --- | --- |
| 1 |  |

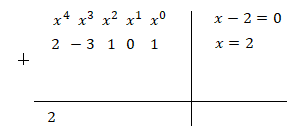
## Division of polynomials

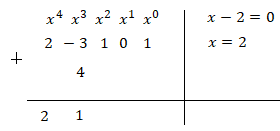
### Long Division

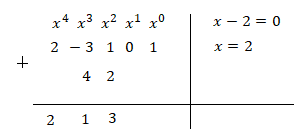


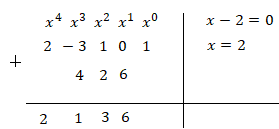


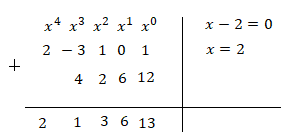
### Synthetic Divisor (works for Linear Divisor)











## Remainder theorem

### Confirming the REMAINDER THOREM

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |

### Exercise on REMAINDER THOREM

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |

## Factor Theorem

|  |  |
| --- | --- |
| 1 |  |
| 2 |  |

## Solutions of Cubic Equation

Note: Only Step 1 is a new step, Step 2 and 3 is what we have learnt above or learnt before

Step 1

Step 2

Step 3

|  |  |
| --- | --- |
| 1 | Tips:  Step 1, trial and error  Step 2,  Step 3, |