

Aim: What is synthetic division? What is the remainder theorem?

I. Do Now: Consider these three related problems.

1. Divide $(x^3 + 5x^2 - 2x - 24)$ by $(x - 2)$.

2. Solve for x :
 $x^3 + 5x^2 - 2x - 24 = 0$

3. (a) Evaluate if $x = 1$:
 $x^3 + 5x^2 - 2x - 24$

(b) Evaluate if $x = 2$:
 $x^3 + 5x^2 - 2x - 24$

II. Notes:

III. Synthetic Division: A shortcut for long division of polynomials by divisors of the form $(x - k)$.

In 4 – 7, divide using synthetic division.

4. $(x^3 + 5x^2 - 2x - 24) \div (x - 2)$ [Do Now #1]

5. $(x^4 - 10x^2 - 2x + 4) \div (x - 2)$

6. $\frac{2x^2 + 10x + 12}{x + 3}$

7. $\frac{x^3 + 5x^2 - 2x - 24}{x - 1}$

The Remainder Theorem:

The remainder obtained by dividing a polynomial $f(x)$ by $(x - k)$ is $f(k)$.

Ex. If $f(x) = x^3 + 5x^2 - 2x - 24$ is divided by $(x - 1)$, the remainder is

HW6

Read pages 181 – 184.

MPS21 HW Sheet #1: 72, 78, 80, 82

p. 191: 7, 13, 17, 23, 24, 25