## Kerry Ojakian's MTH 30 Class Class Assignment #12

- 1. Is (x 1) a factor of  $x^5 + 3x^4 x + 2?$
- 2. Is (x+1) a factor of  $x^5 2x^4 x + 2$ ?
- 3. Use long division to find  $(4x^2 10x + 6) \div (4x + 2)$ .
- 4. Find the quotient and remainder that result from the following division:  $\frac{x^3 2x^2 5x + 6}{x + 2}$

5. Divide  $\frac{x^4 - 2x^2 - 5x + 6}{x - 3}$  using long division. Write your answer in the form N(x) = d(x)q(x) + r(x), where N is the divident, d is the divisor, q is the quotient, and r is the remainder.

6. Divide  $\frac{3x^4 - 2x^3 - 7x^2 + x - 2}{x^2 - 2x + 3}$  using long division. Write your answer in the form N(x) = d(x)q(x) + r(x), where N is the numerator, d is the denominator, q is the quotient, and r is the remainder.

7. Divide  $\frac{x^5 + x^4 - x^3 - x^2 + 3x - 1}{x^2 + x + 1}$  using long division. Write your answer in the form  $\frac{N(x)}{d(x)} = q(x) + \frac{r(x)}{d(x)}$ , where N is the numerator, d is the denominator, q is the quotient, and r is the remainder.

8. Find the quotient and remainder that result from the following division:  $\frac{x^7-1}{x-1}$ 

9. Find the quotient and remainder that result from the following division:  $\frac{-2x^3 - 7x^2 + x - 2}{x + 1}$ 

10. Find the quotient and remainder that result from the following division:  $\frac{x^4 - x^3 + x - 1}{x - 2}$ 

11. Solve the equation  $2x^3 - 3x^2 - 11x + 6 = 0$  given that -2 is a zero of  $f(x) = 2x^3 - 3x^2 - 11x + 6$ .

12. Solve the equation  $3x^3 + 7x^2 - 22x - 8 = 0$  given that  $-\frac{1}{3}$  is a root.

- 13. The remainder from dividing a polynomial p(x) by  $\left(x \frac{1}{2}\right)$  is  $\frac{11}{17}$ . How much is  $p\left(\frac{1}{2}\right)$ ? Which theorem are you using?
- 14. The remainder from dividing a polynomial p(x) by  $\left(x \frac{1}{2}\right)$  is  $\frac{11}{17}$ . How much is  $p\left(\frac{1}{2}\right)$ ? Which theorem are you using?
- 15. What is the remainder you would get it you divide the polynomial  $f(x) = x^{103} + x^{50} + 2$  by (x 1)?