Honors Pre-Calc 10-22-07

1. Divide using synthetic division, and write a summary statement in fraction form.

$$\frac{5x^4 + 28x^3 - 12x^2 - 12x - 79}{x+6}$$

Proof of Remainder Theorem:

$$\frac{f(x)}{d(x)} = q(x) + \frac{r(x)}{d(x)}$$

Let $d(x) = x - k,$ where k is a real number.

$$f(x) = q(x)(x-k) + r$$

Evaluate $f(x)$ at $x = k.$

$f(k) =$

$f(k) =$

$f(k) =$

$f(k) =$

Honors Pre-Calc **10-22-07**

2. Use the Remainder Theorem to find the remainder when $f(x)$ is divided by $x-k$.

$$f(x)=3x^5+x^4-2x^3-5x^2+4x-13 \qquad k=-1$$

3. Use the Factor Theorem to determine whether the first polynomial is a factor of the second polynomial.

$$x+3 \qquad -2x^3-5x^2+8x+15$$

Honors Pre-Calc **10-22-07**

4. Find the polynomial function with leading coefficient 2 that has the given degree 3 and zeros of 3, -4, 1.

5. Use the Rational Zeros Theorem to write a list of all potential rational zeros. Then determine which ones, if any, are zeros.

$$f(x) = 2x^3 + 11x^2 + 13x - 6$$

Page 217 13-36, skip divisible by 4
49-55, skip divisible by 4