AA6-5 and 6-6 Name _____ _____

Finding Roots of Higher-Degree Polynomials

Check for Understanding:

1. $P(x) = x^3 - 3x^2 - 7x + 9$

   a. Divide $P(x) = x^3 - 3x^2 - 7x + 9$ by (x-5)

   b. Find P(5)

c. Write the partially factored form: P(x) =

d. Is (5,0) a root of P(x)?

2. $P(x) = x^3 + 6x^2 + 5x - 6$. Is (-2,0) a root of P(x)?

   a. Divide

   b. Find P(-2)

c. Write the partially factored form: P(x) =

d. Is (-2,0) a root of P(x)?

Practice C-Level

Given a factor of the polynomial, rewrite it in fully factored form.

3. $y = x^3 + 3x^2 - 28x - 60$ Factor: $x + 2$

Partially factored: _____

Fully factored: _____

Roots: _____

4. $y = 4x^3 + 24x^2 - 31x - 21$ Factor: $x + 7$

Partially factored: _____

Fully factored: _____

Roots: _____

Use both methods to answer each question. Then, write the equation in partially factored form.

5) Determine if (3,0) is a root of $P(x)=2x^3-7x^2+6x-3$

6) Determine if (x+2) is a factor of $f(x)=x^3-5x^2+7x-2$

B-Level

7) .Rewrite the polynomial it in fully factored form.

$y=x^4+x^3-3x^2-x+2$ Factor: $(x-1)^2$

Partially factored: _____

Partially factored: _____

Fully factored: _____

Roots: _____

8). Determine if $(x-1)$ is a factor of

$P(x)=4x^3-5x+6$

9). Determine if there is a root of f(x) at x = -1.

$f(x)=3x^5-4x^4-2x^3+5x^2+x-1.$

10). Determine if there is a root at $x=-2$ of

$P(x)=x^4+3x^3-9x-10$