

Name: \_\_\_\_\_  
PC: Factoring and Solving Higher Degree Polynomials

Date: \_\_\_\_\_  
Ms. Loughran

Find the complete factorization and all zeros of the following polynomials using the information given.

1.  $P(x) = x^4 + 6x^3 + 7x^2 - 12x - 18$ ; zero:  $-3$  (a double zero)
2.  $P(x) = x^4 - x^3 - 5x^2 - x - 6$ ; zeros:  $3, -2$
3.  $P(x) = x^4 - 5x^3 + 3x^2 + 15x - 18$ ; zeros:  $3, 2$
4.  $P(x) = x^4 + 4x^3 - 7x^2 - 36x - 18$ ; zeros:  $\pm 3$
5.  $P(x) = x^4 + 3x^3 + 3x^2 + x$ ; zero:  $-1$
6.  $P(x) = x^4 + 6x^3 + 2x^2 - 18x - 15$ ; zeros:  $-1, -5$
7.  $P(x) = x^4 + 2x^3 - 7x^2 - 18x - 18$ ; zeros:  $\pm 3$
8.  $P(x) = -x^5 + 5x^4 - 3x^3 - 15x^2 + 18x$ ; zeros:  $3, 2$
9.  $P(x) = 3x^4 - 11x^3 - 3x^2 - 6x + 8$ ; zeros:  $4, \frac{2}{3}$
10.  $P(x) = 2x^5 - 5x^4 + x^3 + 4x^2 - 4x$ ; zeros:  $2, -1$