Algebra 2H HW#_____ Extra Fun Problems (3-3 thru 3-6)

Do all work on your own paper.

1. Given that $\frac{-5}{2}$ and $\frac{-1}{3}$ are zeros of $p(x) = 6x^6 - 7x^5 - 39x^4 + 24x^3 - 30x^2 + 31x + 15$, find the other zeros.

2. Factor completely: $\left(x^2 + 2x - 5\right)^2 - \left(x^2 + 1\right)^2$

3. Factor completely: $2x + 5\sqrt{x} + 2$

4. Write a polynomial function of least degree given the zeros -2, 3, and 2 + *i*.

5. If $\sqrt{3}$ is a zero of $p(x) = x^4 - 2x^3 + 7x^2 + 6x - 30$, find the other zeros.

Answers: 1. 1, 3, $\pm i$ 2. $4(x + 2)(x - 1)(x - 3)$ 4. $p(x) = x^4 - 5x^3 + 3x^2 + 21x - 30$

5. $-\sqrt{3}$, $1 \pm 3i$

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