Algebra 2H

Polynomial Review

Factor the following
1. $2x^3 + 54$
2. $x^6 - 64$
3. $2x^3 - 10x^2 + 4x - 20$
4. $16x^4 - 8x^2 + 1$

Divide the following
5. $(12x^3 + 2 + 11x + 20x^2) \div (2x + 1)$
6. $(3x^3 + 4x + 11) \div (x^2 - 3x + 2)$

Write the polynomial equation of least degree with zeros
7. $-5, 2 + i$
8. $3, -2, 1 - i$

State the end behavior and graph each function.
9. $f(x) = -x(x + 2)^2(x - 1)$
10. $g(x) = x^2(x - 4)$
11. $h(x) = -3(x + 3)(x - 1)(x - 3)^3$

12. Graph the function $y = 2(x + 1)^3 - 4$ and state the transformations taking place.

Find the zeros of the following polynomials and graph.
13. $f(x) = x^3 + 6x^2 + 5x - 12$
14. $h(x) = x^4 + 4x^3 + 7x^2 + 16x + 12$

15. Solve the inequality: $x^3 + 6x^2 + 5x - 12 \leq 0$

16. At a factory, molten glass is poured into molds to make paperweights. Each mold is a rectangular prism with a height 4 inches greater than the length of each side of its square base. Each mold holds 63 cubic inches of molten glass. What are the dimensions of the mold? No guess and check! Must show work!