Algebra 2H HW #_____ Section 3-4 and Review

Copy problems onto your paper and show work.

Factor completely.

1. $x^3 + 2x^2 - 16x - 32$
2. $2x^4 - 2x^3 + x^2 - x$
3. $81x^8 - 256y^8$
4. $27x^{4n} - 3$
5. $64x^3 - 343$
6. $3x^3 + 24x$
7. $16x^8 - 72x^4 + 81$
8. $4x^4 - 5x^2 - 9$
9. $10x^5 + 62x^3 + 12x$
10. Divide using long division: $\left(5x^4 + 14x^3 + 9x\right) \div \left(x^2 + 3x\right)$
11. Divide using synthetic division: $\left(10x^4 + 5x^3 + 4x^2 - 12\right) \div \left(x + 1\right)$
12. Expand and simplify, using Pascal's Triangle: $\left(2 + i\right)^4$

Answers: 10. $5x^2 - x + 3$ 11. $10x^3 - 5x^2 + 9x - 9 - \frac{3}{x+1}$ 12. $-7 + 24i$

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