Algebra 2 Chapter 6 Test Review

Multiple Choice
Identify the letter of the choice that best completes the statement or answers the question. PLEASE WRITE LEGIBLY!!
IF I CAN'T READ IT, IT'S WRONG!

____ 1. Determine which binomial is a factor of $4x^3 + 10x^2 + 2x - 4$.
a. $x - 4$ b. $x - 2$ c. $x + 2$ d. $x + 2$

____ 2. Determine which binomial is not a factor of $4x^4 - 21x^3 - 46x^2 + 219x + 180$.
a. $x - 5$ c. $4x + 3$
b. $x + 3$ d. $x + 4$

____ 3. Find the rational roots of $x^4 + 8x^3 + 7x^2 - 40x - 60 = 0$.
a. 2, 6 b. –6, –2 c. –2, 6 d. –6, 2

Find the roots of the polynomial equation.

____ 4. $2x^3 + 2x^2 - 19x + 20 = 0$
a. $\frac{3+i}{2}, \frac{3-i}{2}, -4$ c. $\frac{-3+i}{2}, \frac{-3-i}{2}, -4$
b. $\frac{-3+2i}{2}, \frac{-3-2i}{2}, 4$ d. $\frac{3+2i}{2}, \frac{3-2i}{2}, 4$

____ 5. $x^4 - 5x^3 + 11x^2 - 25x + 30 = 0$
a. $-2, -3, \pm i\sqrt{5}$ c. $-2, 3, \pm\sqrt{5}$
b. $2, -3, \pm\sqrt{5}$ d. $2, 3, \pm i\sqrt{5}$

Short Answer

Factor the expression.

6. $x^3 - 64$

7. $x^4 - 20x^2 + 64$

8. The table shows the number of hybrid cottonwood trees planted in tree farms in Oregon since 1995. Find a cubic function to model the data and use it to estimate the number of cottonwoods planted in 2006.

Years since 1995	1	3	5	7	9
Trees planted (in thousands)	1.3	18.3	70.5	177.1	357.3

9. Use the Rational Root Theorem to list all possible rational roots of the polynomial equation $x^3 - 6x^2 - 9x - 5 = 0$. Do not find the actual roots.

Find the roots of the polynomial equation.

10. $x^3 - 2x^2 + 10x + 136 = 0$

11. Write a polynomial function in standard form with zeros at 4, –3, and –5.

12. Write $5x^2(-2x^2 - 3x^3)$ in standard form. Then classify it by degree and number of terms.