ALGEBRA 2 – Unit 4 / Day 3   Name _____
HOMEWORK: *Synthetic Division of Polynomials*

Divide using the Box Method

1. $(x-3)\overline{)\left(3x^3+2x^2-32x+2\right)}$	**2.** $\dfrac{\left(6x^3+13x^2+x-2\right)}{(3x-1)}$
3. $\left(2x^4-2x^3-40x^2-6x-24\right) \div \left(x+4\right)$	**4.** $\dfrac{\left(4x^4-5x^2+2x+3\right)}{(2x-1)}$

Divide using Synthetic Division

5. $\left(x^4-8x^3+54x+105\right) \div \left(x-5\right)$	**6.** $(x^5-6x^3+4x^2-3) \div \left(x-2\right)$

7. $\left(2x^3 - 3x^2 - 8x + 4\right) \div \left(2x + 1\right)$

8. $\dfrac{\left(12x^4 - 25x^3 + 37x^2 - 16x + 2\right)}{\left(3x - 1\right)}$

Factor the following polynomials completely over the set of rational numbers.
Remember the first step of factoring and the special patterns discussed in class.

9. $64x^3 + 125$

10. $4096x^4 - 81$

11. $-32x^5 + 200x^3$

12. $2x^4 + 4x^2 - 96$

13. $12x^8 - 76x^5 - 160x^2$

14. $18x^5 - 41x^3 + 16x$