HW: 3.4 Factor and Solve Polynomial Equations Algebra 1 Kitt

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Period:\_\_\_\_

**Sum or Difference of Cubes**: *Factor the polynomial.*

1. $x^{3}-8$ 2. $x^{3}+64$ 3. $125x^{3}-8$ 4. $1000x^{3}+27$

**Factor by Grouping**: *Factor the polynomial by grouping.*

 5. $x^{3}+x^{2}+x+1$ 6. $x^{3}+3x^{2}+10x+30$

 7. $-2x^{3}-4x^{2}-3x-6$ 8. $3x^{3}-2x^{2}-9x+6$

**Quadratic Pattern**: *Factor the polynomial.*

9. $16x^{4}-1$ 10.$x^{4}+3x^{2}+2$ 11. $x^{4}+10x^{2}+16$ 12. $x^{4}-1$

**Solving Equations**: *Find all the solutions to each of the polynomial equations.*

13. $x^{3}+27=0$ 14. $8x^{3}-1=0$ 15. $x^{3}-5x^{2}+5x-25=0$

16. $x^{3}+3x^{2}-2x-6=0$ 17. $x^{4}+5x^{2}-24=0$ 18. $x^{4}-x^{2}-72=0$