**Assignment: Higher Order Factoring**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period \_\_\_\_\_\_\_\_

**Factor by grouping.**

1. $x^{3}+4x^{2}+2x+8$ 2. $x^{3}-6x^{2}+9x-54$

3. $2x^{3}+2x^{2}-3x-3$ 4. $x^{3}-12x^{2}-2x+24$

5. $4x^{3}-16x^{2}+x-4$

**Factor using synthetic division.**

6. $x^{3}+4x^{2}+5x+2$ 7. $x^{3}-3x^{2}-16x-12$

8. $x^{3}-x^{2}-21x+45$ 9. $x^{3}-x^{2}+x-6$

10. $x^{3}+2x^{2}+3x+2$ 11. $x^{3}-2x^{2}+3x-2$

12. $x^{3}+6x-7$ 13. $x^{3}+3x+14$

**Review: Factor.**

14. $x^{3}-2x^{2}-3x$ 15. $x^{3}+27$ 16. $x^{6}-8$