5.6b MORE FACTORING

Can I take anything out? (ALWAYS ASK THIS FIRST!!)

1. \(18x^2y - 9x\)

Is it the difference of two perfect squares? If so, will it factor again? \((x^2 + y^2 \text{ is prime!!})\)

2. \(4x^2 - 9\)  
3. \(x^4 - 81\)  
4. \(9x^2 - 81\)

Can I break the trinomial (three terms) into two binomials? (Note the leading coefficient)

5. \(x^2 - 6xy - 27y^2\)  
6. \(6x^2 - 7x + 2\)

Can I break the **FOUR** terms into groups of two and factor?

7. \(x^3 + x^2y - 9x - 9y\)
STRATEGY FOR FACTORIZING COMPLETELY:
A. Always look for the greatest common factor first!! Ask: Can I take anything out?

B. 2 TERMS
   It will not factor further unless it is the difference of squares.
   Remember: $x^2 - y^2 =$ But $x^2 + y^2$ is __________

C. 3 TERMS - choose method based on leading coefficient

D. 4 TERMS – grouping

E. Check to see if you can factor again

Factor Completely.

1. $3x - 9$  
2. $x^2 - 9$  
3. $x^2 - 6x + 9$

4. $3x^2 - 6x + 9$  
5. $x^2 + x - 3x - 3$  
6. $4x^2 - 4x + 1$

7. $4x^2 - 16$  
8. $6x^2 - x - 1$  
9. $6x^2 +20x - 16$

10. $8x^4 - 8y^4$  
11. $x^3 - x + 2x^2 - 2$  
12. $x^2 - 42 - x$

13. $-x^2 - xy + 56y^2$  
14. $6x^2 - 6y^2 + 5xy$  
15. $x^2 + 100$