

# Factoring Polynomials - Summary 1 - KEY

Factor the Following Polynomials Completely

1)  $x^2 - 4x = x(x - 4)$

13)  $x^4 - 10x^2 + 25 = (x^2 - 5)^2$

2)  $x^2 + 5x - 6 = (x - 1)(x + 6)$

14)  $x^2 + 6xy - 7y^2 = (x - y)(x + 7y)$

3)  $x^2 + 6x + 9 = (x + 3)^2$

15)  $x^3 + 2x^2 - 4x - 8$   
 $= (x + 2)^2(x - 2)$

4)  $x^2 - 36 = (x - 6)(x + 6)$

16)  $x^4 - 81 = (x + 3)(x - 3)(x^2 + 9)$

5)  $x^2 + 4$  Does Not Factor

17)  $3x^2 + 13x + 4 = (3x + 1)(x + 4)$

6)  $x^3 + 2x^2 + 3x + 6$   
 $= (x + 2)(x^2 + 3)$

18)  $x^2 + x = x(x + 1)$

7)  $x^2 + 9x = x(x + 9)$

19)  $-x^2 - 2x + 8 = -1(x - 2)(x + 4)$

8)  $x^2 - 11x - 12 = (x - 12)(x + 1)$

20)  $6x^2 - 7x + 2 = (3x - 2)(2x - 1)$

9)  $16x^2 - 25 = (4x - 5)(4x + 5)$

21)  $4x^2 - 64 = 4(x - 4)(x + 4)$

10)  $x^2y - 5xy - 24y = y(x - 8)(x + 3)$

22)  $x^3 + 2x^2 + x + 2 = (x + 2)(x^2 + 1)$

11)  $x^2 - 9x + 16$  Does Not Factor

23)  $x^4 + 16y^2$  Does Not Factor

12)  $25x^2 - 100 = 25(x - 2)(x + 2)$

24)  $(x + 3)^2 - y^2$   
 $= (x + 3 - y)(x + 3 + y)$