Factoring Refresher

Use the problems below to refresh your factoring skills.

Set 1: Greatest Common Factor	
1. $12k - 18$ $6(2k-3)$	2. $40x^8y + 64x^4y$ $8x^4y(5x^4+8)$
3. $14m^6 - 35m^3 - 7m^2$ $7m^2(2m^4-5m-1)$	4. $3ab^2 - 5a^2b + 8ab$ $ab(3b-5a+8)$

** When factoring, always look for a GCF first! **

Set 2: Trinomials ($ax^2 + bx + c$, where a=1)	
5. $x^2 + 14x + 45$ $(x+5)(x+9)$	6. $x^2 - 15x + 26$ $(x-13)(x-2)$
7. $x^2 + 2x - 48$ $(x+8)(x-6)$	8. $x^2 - x - 72$ $(x+8)(x-9)$
9. $x^2 + 12x + 36$ $(x+6)(x+6)$ or $(x+6)^2$	10. $x^2 - 2x + 1$ $(x-1)(x-1)$ or $(x-1)^2$
11. $2x^2 - 16x - 40$ $2(x^2-8x-20)$ $2(x-10)(x+2)$	12. $5x^2 - 25x + 30$ $5(x^2-5x+6)$ $5(x-3)(x-2)$

Set 3: Trinomials ($ax^2 + bx + c$, where a>1)	
13. $2x^2 - 15x + 18$ $ac = 36$ $2x^2-12x-3x+18$ $2x(x-6)-3(x-6)$ $(2x-3)(x-6)$ $-12 \cdot -3$	14. $5x^2 + 22x - 48$ $5 \cdot 48 = 240$ $5x^2+30x-8x-48$ $5x(x+6)-8(x+6)$ $(5x-8)(x+6)$ $30 \cdot -8$

15. $3x^2 - 19x - 40$ $ac = 120$, $-24 \cdot 5$

$3x^2 - 24x + 5x - 40$

$3x(x-8) + 5(x-8)$

$(3x+5)(x-8)$

16. $12x^2 + 5x - 2$ $ac = -24$, $8 \quad -3$

$12x^2 + 8x - 3x - 2$

$4x(3x+2) - 1(3x+2)$

$(4x-1)(3x+2)$

17. $6x^2 - 5x - 21$ $ac = 126$, $-9 \quad -14$

$6x^2 + 9x - 14x - 21$

$3x(2x+3) - 7(2x+3)$

$(3x-7)(2x+3)$

18. $16x^2 + 60x - 54$ $2(8x^2 + 30x - 27)$, $ac = 216$, $36 \quad -6$

$2[8x^2 + 36x - 6x - 27]$

$2[4x(2x+9) - 3(2x+9)]$

$2(4x-3)(2x+9)$

19. $9x^2 - 12x + 4$ $ac = 36$, $-6 \quad -6$

$9x^2 - 6x - 6x + 4$

$3x(3x-2) - 2(3x-2)$

$(3x-2)(3x-2)$

or

$(3x-2)^2$

20. $8x^2 + 56x + 96$ $8(x^2 + 7x + 12)$

$8(x+3)(x+4)$

Set 4: Difference of Squares $(a^2 - b^2) = (a+b)(a-b)$

21. $x^2 - 4$ $x \quad 2$

$(x+2)(x-2)$

22. $x^2 - 81$ $x \quad 9$

$(x+9)(x-9)$

23. $9x^2 - 25y^4$ $3x \quad 5y^2$

$(3x+5y^2)(3x-5y^2)$

24. $y^2x^2 - 49$ $yx \quad 7$

$(yx+7)(yx-7)$