

# WS - Factoring Extra Practice

Tuesday, November 06, 2012  
11:18 AM

## Factoring Extra Practice

Name: Key  
Date: \_\_\_\_\_ Block: \_\_\_\_\_

Factor fully, if possible. Answers are scrambled on the back of this sheet.

1.  $5y^2 - 20y$   $GCF = 5y$   
 $5y(y-4)$

2.  $2x(m+n) - (m+n)$   
 $(m+n)(2x-1)$

3.  $m^2 + 11m + 24$   
 $(m+3)(m+8)$

4.  $3x^2 + 12x - 36$   $GCF = 3$   
 $3(x^2 + 4x - 12)$   
 $3(x-2)(x+6)$

5.  $2x^2 - 7x + 5$   $2 \cdot 5 = 10$   
 $2x^2 - 2x - 5x + 5$   $\begin{matrix} \wedge \\ -2 & -5 \end{matrix}$   
 $2x(x-1) - 5(x-1)$   
 $(x-1)(2x-5)$

6.  $4x^2 + 6x + 2$   $GCF = 2$   
 $2(2x^2 + 3x + 1)$   $2 \cdot 1 = 2$   
 $2(2x^2 + 2x + x + 1)$   $\begin{matrix} \wedge \\ 2 & 1 \end{matrix}$   
 $2(2x(x+1) + 1(x+1))$   
 $2(x+1)(2x+1)$

7.  $x^2 - 25$   
 $(x+5)(x-5)$

8.  $x^2 + 10x + 25$   
 $(x+5)(x+5)$   
 $(x+5)^2$

9.  $5x^2 - 5$   $GCF = 5$   
 $5(x^2 - 1)$   
 $5(x+1)(x-1)$

10.  $2xy - 8xy^3$   $GCF = 2xy$   
 $2xy(1 - 4y^2)$   
 $2xy(1 + 2y)(1 - 2y)$

11.  $5a(y+2) + 7(y+2)$   
 $(y+2)(5a+7)$

12.  $9t - 4t^3$   $GCF = t$   
 $t(9 - 4t^2)$   
 $t(3+2t)(3-2t)$

13.  $x^2 + 3x + 4$   
will not factor

14.  $ay^2 + 12ay - 28a$   $GCF = a$   
 $a(y^2 + 12y - 28)$   
 $a(y+14)(y-2)$

15.  $2m^2 + 2m - 3$   $2 \cdot 3 = 6$   
will not factor

16.  $6x^2 - x - 1$   $6 \cdot -1 = -6$   
 $6x^2 - 3x + 2x - 1$   $\begin{matrix} \wedge \\ -3 & 2 \end{matrix}$   
 $3x(2x-1) + 1(2x-1)$   
 $(2x-1)(3x+1)$

17.  $x^2 + 6x + 9$   
 $(x+3)(x+3)$   
 $(x+3)^2$

18.  $2x^2 + 11x + 5$   $2 \cdot 5 = 10$   
 $2x^2 + x + 10x + 5$   $\begin{matrix} \wedge \\ 1 & 10 \end{matrix}$   
 $x(2x+1) + 5(2x+1)$   
 $(2x+1)(x+5)$

19.  $20m^2 - 8m - 12$   $GCF = 4$   
 $4(5m^2 - 2m - 3)$   $5 \cdot 3 = 15$   
 $4(5m^2 - 5m + 3m - 3)$   $\begin{matrix} \wedge \\ -5 & 3 \end{matrix}$   
 $4(5m(m-1) + 3(m-1))$   
 $4(m-1)(5m+3)$

20.  $m^2 + 16$   
will not factor

21.  $4a^2 - 16b^2$   $GCF = 4$   
 $4(a^2 - 4b^2)$   
 $4(a+2b)(a-2b)$

$$22. 9t^2 - 6t + 1 \quad 9 \cdot 1 = 9 \quad \begin{matrix} 9 & -3 & -3 & 1 \\ 9t^2 & -3t & -3t & +1 \end{matrix}$$

$$3t(3t-1) - 1(3t-1)$$

$$(3t-1)^2$$

$$25. w^2 - w - 30$$

$$(w+5)(w-6)$$

$$23. 18y^2 + 60y + 50 \quad \text{GCF} = 2$$

$$2(9y^2 + 30y + 25) \quad 9 \cdot 25 = 225 \quad \begin{matrix} 9 & 15 & 15 & 25 \\ 9y^2 & 15y & 15y & +25 \end{matrix}$$

$$2(3y(3y+5) + 5(3y+5))$$

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

$$24. 5x^2 - 15x + 10 \quad \text{GCF} = 5$$

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

$$5(x-2)(x-1)$$

$$26. 8x^4 - 20x^2 - 48 \quad \text{GCF} = 4$$

$$4(2x^4 - 5x^2 - 12) \quad 2 \cdot 12 = 24 \quad \begin{matrix} 2 & -8 & 3 & -12 \\ 2x^4 & -8x^2 & 3x^2 & -12 \end{matrix}$$

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

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

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

$$27. (x-10)^2 - (y-5)^2 \quad \begin{matrix} \text{let } a = x-10 \\ b = y-5 \end{matrix}$$

$$a^2 - b^2$$

$$(a+b)(a-b)$$

$$[(x-10) + (y-5)][(x-10) - (y-5)]$$

$$(x+y-15)(x-y-5)$$

$$28. 16m^4 - 36n^4 \quad \text{GCF} = 4$$

$$4(4m^4 - 9n^4)$$

$$4(2m^2 + 3n^2)(2m^2 - 3n^2)$$

$$29. x^4 - 13x^2 + 36$$

$$(x^2-4)(x^2-9)$$

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

$$30. 7st - 22mn$$

will not factor

$$31. 25r^2 - 20r + 4 \quad 25 \cdot 4 = 100 \quad \begin{matrix} 25 & -10 & -10 & 4 \\ 25r^2 & -10r & -10r & +4 \end{matrix}$$

$$5r(5r-2) - 2(5r-2)$$

$$(5r-2)^2$$

$$32. 3y^2 - 27 \quad \text{GCF} = 3$$

$$3(y^2 - 9)$$

$$3(y+3)(y-3)$$

$$33. x^3 - 4x^2 + 4x \quad \text{GCF} = x$$

$$x(x^2 - 4x + 4)$$

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

$$x(x-2)^2$$

$$34. 9x^2 - 24x + 16 \quad 9 \cdot 16 = 144 \quad \begin{matrix} 9 & -12 & -12 & 16 \\ 9x^2 & -12x & -12x & +16 \end{matrix}$$

$$3x(3x-4) - 4(3x-4)$$

$$(3x-4)^2$$

$$35. y^3 - 18y^2 + 81y \quad \text{GCF} = y$$

$$y(y^2 - 18y + 81)$$

$$y(y-9)(y-9)$$

$$y(y-9)^2$$

$$36. 20r^2 + 7rp - 6p^2 \quad 20 \cdot (-6) = -120 \quad \begin{matrix} 20 & 15 & -8 & -6 \\ 20r^2 & 15rp & -8rp & -6p^2 \end{matrix}$$

$$5r(4r+3p) - 2p(4r+3p)$$

$$(4r+3p)(5r-2p)$$