

## FACTOR COMPLETELY:

<p>1. <math>15x^2y - 10xy^2</math></p> <p><math>5xy(3x - 2y)</math></p>	<p>2. <math>2x^3y - x^2y + 5xy^2</math></p> <p><math>xy(2x^2 - x + 5y)</math></p>	<p>3. <math>7k^2 + 9k</math></p> <p><math>k(7k + 9)</math></p>
<p>4. <math>2p^3 + 5p^2 + 6p + 15</math></p>	<p>5. <math>m^3 - m^2 + 2m - 2</math></p>	<p>6. <math>12xy - 28x - 15y + 35</math></p>
<p>7. <math>16r^2 - 169</math></p> <p><math>(4r+13)(4r-13)</math></p> <p><math>4x+8</math> <math>4(x+2)</math></p>	<p>8. <math>x^2 - 49</math></p> <p><math>(x-7)(x+7)</math></p>	<p>9. <math>2y^2 - 242</math></p> <p><math>2(y^2 - 121)</math></p> <p><math>2(y-11)(y+11)</math></p>
<p>10. <math>x^2 + 64</math></p> <p>Prime</p>	<p>11. <math>x^4 - 81</math></p> <p><math>(x^2 + 9)(x^2 - 9)</math></p> <p><math>(x^2 + 9)(x-3)(x+3)</math></p>	<p>12. <math>25 - 4x^2</math></p> <p><math>(5 - 2x)(5 + 2x)</math></p>
<p>13. <math>4x^6 - 4x^2</math></p> <p><math>4x^2(x^4 - 1)</math></p> <p><math>4x^2(x^2 - 1)(x^2 + 1)</math></p> <p><math>4x^2(x+1)(x-1)(x^2 + 1)</math></p>	<p>14. <math>45x^2 - 80y^2</math></p> <p><math>5(9x^2 - 16y^2)</math></p> <p><math>5(3x - 4y)(3x + 4y)</math></p>	<p>15. <math>16 - 81x^2</math></p> <p><math>(4 + 9x)(4 - 9x)</math></p>

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

I. Factoring Trinomials →  $x^2 + bx + c$  "SHORTCUT" \*\*\* Always check for a GCF first!!!

<p>A. <math>x^2 + 9x + 20</math> ✓  <math>(x+4)(x+5)</math>  <math>\begin{array}{r} 1 \ 20 \\ 2 \ 10 \\ \hline 4 \ 5 \end{array}</math></p>	<p>B. <math>x^2 - 7x + 10</math> ✓ ✓  <math>(x-5)(x-2)</math>  <math>\begin{array}{r} 1 \ 10 \\ 2 \ 5 \\ \hline 2 \ 5 \end{array}</math></p>	<p>C. <math>x^2 + 3x - 40</math> ✓  <math>(x-5)(x+8)</math>  <math>\begin{array}{r} 1 \ 40 \\ 2 \ 20 \\ 4 \ 10 \\ \hline -5 \ 8 \end{array}</math></p>
<p>D. <math>x^2 - 3x - 10</math> ✓ ✓  <math>(x-5)(x+2)</math>  <math>\begin{array}{r} 1 \ 10 \\ 2 \ 5 \\ \hline 2 \ 5 \end{array}</math></p>	<p>E. <math>2x^2 - 8x - 90</math> ✓ ✓  <math>2(x^2 - 4x - 45)</math>  <math>2(x+5)(x-9)</math>  <math>\begin{array}{r} 1 \ 45 \\ 3 \ 15 \\ \hline 5 \ 9 \end{array}</math></p>	<p>F. <math>x^4 - 7x^2 + 12</math>  <math>(x^2-3)(x^2-4)</math>  <math>(x^2-3)(x-2)(x+2)</math>  <math>\begin{array}{r} 1 \ 12 \\ 2 \ 6 \\ \hline 3 \ 4 \end{array}</math></p>

IV. Factoring Trinomials →  $ax^2 + bx + c$  "Illegal Move" \*\*\* Always check for a GCF first!!!!

<p>A. <math>2x^2 + 7x + 6</math>  <math>x^2 + 7x + 12</math>  <math>(x+3)(x+4)</math>  <math>(2x+3)(x+2)</math>  <math>\begin{array}{r} 1 \ 12 \\ 2 \ 6 \\ 3 \ 4 \\ \hline 3 \ 4 \end{array}</math></p>	<p>B. <math>2x^2 - 9x + 4</math>  <math>x^2 - 9x + 8</math>  <math>(x-\frac{8}{2})(x-\frac{1}{2})</math>  <math>(x-4)(2x-1)</math>  <math>\begin{array}{r} 1 \ 8 \\ 2 \ 4 \\ \hline 2 \ 4 \end{array}</math></p>	<p>C. <math>3x^2 + 5x + 2</math>  <math>x^2 + 5x + 6</math>  <math>(x+2)(x+3)</math>  <math>(3x+2)(x+1)</math>  <math>\begin{array}{r} 1 \ 6 \\ 2 \ 3 \\ \hline 2 \ 3 \end{array}</math></p>
<p>D. <math>6x^2 - 4x - 42</math>  <math>2(3x^2 - 2x - 21)</math>  <math>2(x^2 - 2x - 63)</math>  <math>2(x+\frac{7}{3})(x-\frac{9}{3})</math>  <math>2(3x+7)(x-3)</math>  <math>\begin{array}{r} 1 \ 63 \\ 3 \ 21 \\ \hline 7 \ 9 \end{array}</math></p>	<p>E. <math>6x^2 + 11xy + 4y^2</math>  <math>x^2 + 11xy + 24y^2</math>  <math>(x+\frac{3y}{6})(x+\frac{8y}{6})</math>  <math>(x+\frac{1}{2}y)(x+\frac{4}{3}y)</math>  <math>(2x+y)(3x+4y)</math>  <math>\begin{array}{r} 1 \ 24 \\ 2 \ 12 \\ 3 \ 8 \\ \hline 4 \ 6 \end{array}</math></p>	<p>F. <math>5x^4 - 17x^2 + 14</math>  <math>x^4 - 17x^2 + 70</math>  <math>(x^2-7)(x^2-\frac{10}{5})</math>  <math>(5x^2-7)(x^2-2)</math>  <math>\begin{array}{r} 1 \ 70 \\ 2 \ 35 \\ 5 \ 14 \\ \hline 7 \ 10 \end{array}</math></p>

Math 2  
 Unit 2 – Quadratic Functions  
 Lesson 6 – Factoring (Trinomials) – HOMEWORK

Name \_\_\_\_\_

Date \_\_\_\_\_ Pd \_\_\_\_\_

Factor Completely:

1. $x^2 - 2x - 48$ $(x-8)(x+6)$ $\begin{array}{l} 1 \quad 48 \\ 2 \quad 24 \\ 3 \quad 16 \\ 4 \quad 12 \\ 6 \quad 8 \end{array}$	2. $x^2 + 10x + 24$ $(x+6)(x+4)$ $\begin{array}{l} 1 \quad 24 \\ 2 \quad 12 \\ 3 \quad 8 \\ 6 \quad 4 \end{array}$	3. $x^2 - 8x + 12$ $(x-2)(x-6)$ $\begin{array}{l} 1 \quad 12 \\ 2 \quad 6 \\ 3 \quad 4 \end{array}$
4. $x^2 + 2x - 8$ $(x-2)(x+4)$ $\begin{array}{l} 1 \quad 8 \\ -2 \quad 4 \end{array}$	5. $x^2 - 1x - 72$ $(x-9)(x+8)$ $\begin{array}{l} 1 \quad 72 \\ 2 \quad 36 \\ 3 \quad 24 \\ 4 \quad 18 \\ 6 \quad 12 \\ 8 \quad 9 \end{array}$	6. $x^2 - 3x - 18$ $(x+3)(x-6)$
7. $x^2 - 5x - 36$ $(x-9)(x+4)$ $\begin{array}{l} 1 \quad 36 \\ 2 \quad 18 \\ 3 \quad 12 \\ 4 \quad 9 \\ 6 \quad 6 \end{array}$	8. $x^2 + 9x + 14$ $(x+2)(x+7)$ $\begin{array}{l} 1 \quad 14 \\ 2 \quad 7 \end{array}$	9. $x^2 + 5x - 36$
10. $x^2 - x - 12$	11. $3x^2 - 2x - 5$ $x^2 - 2x - 15$ $(x-5)(x+\frac{3}{3})$ $(3x-5)(x+1)$ $\begin{array}{l} 1 \quad 15 \\ 3 \quad 5 \end{array}$	12. $2x^2 + 3x - 9$
13. $3x^2 - 8x + 4$	14. $5x^2 + 19x + 12$	15. $2x^2 + 11x = 5$ $2x^2 + 11x - 5 = 0$ $\begin{array}{l} -5 \quad -5 \end{array}$
16. $2x^2 + 5x + 2$	17. $7x^2 + 53x + 28$	18. $9x^2 + 66x + 21$