

HW

Name _____ Date _____ Block _____ Score _____

HW: 8-1 and 8-2 Monomials and Factoring

Factor each monomial completely.

1. $81b^2c^3$
 $= 3 \cdot 3 \cdot 3 \cdot 3 b b c c c$

2. $-77w^4$
 $= -7 \cdot 11 w w w w$

3. $168nq^2r$
 $= 2 \cdot 2 \cdot 2 \cdot 3 \cdot 7 n q q r$

4. $-121x^2yz^2$
 $= -11 \cdot 11 x x y z z$

Find the GCF of each set of monomials.

5. $24fg^5, 56f^3g$
 $GCF = 8fg$

6. $72r^2t^2, 36rt^3$
 $GCF = 36rt^2$

7. $40xy^2, 56x^3y^2, 24x^2y^3$
 $GCF = 8xy^2$

8. $88a^3d, 40a^2d^2, 32a^2d$
 $GCF = 8a^2d$

9. **RENOVATION** Ms. Baxter wants to tile a wall to serve as a splashguard above a basin in the basement. She plans to use equal-sized tiles to cover an area that measures 48 inches by 36 inches.

a. What is the maximum-size square tile Ms. Baxter can use and not have to cut any of the tiles?

48: 1, 2, 3, 4, 6, 8, 12, 16, 24, 48
 36: 1, 2, 3, 4, 6, 9, 12, 18, 36

b. How many tiles of this size will she need?

$\frac{36}{12} = \frac{48}{12}$
 $3 = 4$
 $3 \times 4 = 12 \text{ tiles}$

12 inches
 $\hookrightarrow 12 \text{ in} \times 12 \text{ in}$

HW DUE

80

Where Do Tadpoles in the Pawn Shop Come From ?

Factor each polynomial below as the product of its greatest monomial factor and another polynomial. Find your answer and notice the letter next to it. Write this letter in each box that contains the number of that exercise.

- ① $3(x^2+6x+3)$
- ② $2(x^2+5x+6)$
- ③ $7(x^2+2x+5)$
- ④ $5(x^2-4x+2)$
- ⑤ $3(2x^2+3x-7)$

ALGEBRA WITH PIZZAZZ!
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 OBJECTIVE: 3-e To factor a polynomial as the product of its greatest monomial factor and another polynomial (polynomial in one variable)

- ① $3x^2 + 18x + 9$
- ② $2x^2 + 10x + 12$
- ③ $7x^2 + 14x + 35$
- ④ $5x^2 - 20x + 10$
- ⑤ $6x^2 + 9x - 21$

- Answers:
- ⓓ $3(2x^2 + 3x - 7)$
 - Ⓛ $3(2x^2 + 4x - 5)$
 - Ⓐ $3(x^2 + 6x + 3)$
 - Ⓟ $5(x^2 - 2x + 5)$
 - ⓕ $5(x^2 - 4x + 2)$
 - Ⓞ $2(x^2 + 5x + 6)$
 - Ⓑ $7(x^2 + x + 6)$
 - Ⓔ $7(x^2 + 2x + 5)$

- ⑥ $n^3 + n^2 + n$
- ⑦ $n^4 - n^3 + n^2$
- ⑧ $2n^3 - n^2 - 5n$
- ⑨ $3n^2 + 9n$
- ⑩ $7n^2 - 28n$

- Answers:
- Ⓢ $n(2n^2 - 2n - 6)$
 - ⓖ $n^2(n^2 - n + 1)$
 - Ⓛ $7n(n + 5)$
 - Ⓢ $3n(n + 3)$
 - Ⓔ $n^2(n^2 - 2n + 3)$
 - Ⓢ $n(n^2 + n + 1)$
 - Ⓢ $n(2n^2 - n - 5)$
 - Ⓢ $7n(n - 4)$

- ⑪ $4k^3 - 32k$
- ⑫ $6k^3 + 10k^2$
- ⑬ $5k^3 + 15k^2 + 10k$
- ⑭ $4k^3 - 20k^2 + 4$
- ⑮ $4k^4 + 18k^3 - 6k^2$

- Answers:
- Ⓟ $4(k^3 - 5k^2 + 1)$
 - Ⓢ $5k(k^2 + 3k + 2)$
 - Ⓢ $4(k^3 - 8k^2 + 2)$
 - Ⓢ $4k(k^2 - 8)$
 - Ⓛ $5k(k^2 + 4k + 1)$
 - Ⓢ $2k^2(2k^2 + 9k - 3)$
 - Ⓢ $2k^2(3k - 9)$
 - Ⓢ $2k^2(3k + 5)$

- ⑪ $4k(k^2-8)$
- ⑫ $2k^2(3k+5)$
- ⑬ $5k(k^2+3k+2)$
- ⑭ $4(k^3-5k^2+1)$
- ⑮ $2k^2(2k^2+9k-3)$

③ $\frac{7x^2}{7} + \frac{14x}{7} + \frac{35}{7}$
 $7(x^2+2x+5)$

⑩ $\frac{7n^3}{7n} - \frac{28n}{7n}$
 $7(n-4)$

4 10 2 8 1 9 13 7 11 14 6 15 12 3 5
 F R O M A F R O G P A W N E D

- ⑥ $n(n^2+n+1)$
- ⑦ $n^2(n^2-n+1)$
- ⑧ $n(2n^2-n-5)$
- ⑨ $3n(n+3)$
- ⑩ $7n(n-4)$

⑪ $\frac{4k^3}{4k} - \frac{32k}{4k}$
 $4k(k^2-8)$

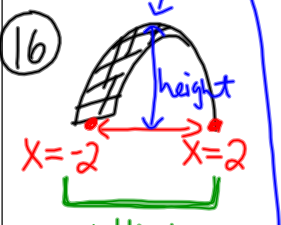
"From a frog pawned."

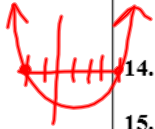
↓
 😊 HA HA HA 😊
 Pond → pawned

<p>Name _____</p> <p>Date <u>3/18/13</u></p> <p>Block _____</p> <p>Pledge _____</p> <p>Score _____</p> <p style="text-align: center;"><u>Five in Ten</u> Monomials and Factoring</p>	<p>3. David is separating 72 students into at least three teams. What size teams will divide the students into two equal groups of no fewer than 15 students?</p> <p>A. 3 teams of 18 students</p> <p><input checked="" type="radio"/> B. 3 teams of 24 students</p> <p>C. 4 teams of 24 students</p> <p>D. 4 teams of 36 students</p> <div style="text-align: center;"> </div>
<p>1. Factor completely:</p> <p style="text-align: center;">$70x^2y$</p> <p style="text-align: center;">$= \boxed{2 \cdot 5 \cdot 7 x x y}$</p>	<p>4. Factor using the Distributive Property:</p> <p style="text-align: center;">$20x^2y + 15xy$</p> <p style="text-align: center;">$= \boxed{5xy(4x + 3)}$</p> <p>check: $5xy(4x + 3)$</p> <p style="text-align: center;">$= 20x^2y + 15xy$ ✓</p>
<p>2. What is the GCF of $4a^2b$, $8ab^2$, and $-4b^3$?</p> <p style="text-align: center;">$GCF = \boxed{4b}$</p>	<p>5. Factor using the Distributive Property:</p> <p style="text-align: center;">$32r^2t + 8rt^3$</p> <p style="text-align: center;">$= 8rt(4r + t^2)$</p> <p>check: $8rt(4r + t^2)$</p> <p style="text-align: center;">$= 32r^2t + 8rt^3$ ✓</p>

<p>8-2 Factoring by Grouping</p>	<p>Name _____ Date <u>3/18/13</u> Block _____</p>
<p><i>Question/Main Ideas:</i></p> <p>Factoring by Grouping</p> <p><u>Example 1:</u> Factoring by Grouping</p> <p>1. $2x^2 + x + 8x + 4$</p> <p>2. $3np - 15p + 4n - 20$</p> <p><u>Example 2:</u> Factoring by Grouping with Additive Inverses</p> <p>3. $3a^2 - 3a - 4a + 4$</p> <p>4. $15a - 3ab + 4b - 20$</p> <p><u>Try These...</u></p> <p>5. $2xy - 2y + 7x - 7$</p> <p>6. $a - 2ab + 8b - 4$</p>	<p><i>Notes:</i></p> <ul style="list-style-type: none"> Using the Distributive Property to factor polynomials with more than 4 terms because the terms are put into groups and then factored. For a video demonstration of factoring by grouping, check out this link: http://www.khanacademy.org/math/algebra/polynomials/v/factoring-trinomials-by-grouping-1 $ax + bx + ay + by =$ $(ax + bx) + (ay + by) =$ <p>o Example: $x(a + b) + y(a + b) =$ $(x + y)(a + b)$</p> <p>① $2x^2 + x + 8x + 4$ $x(2x + 1) + 4(2x + 1)$ $= (2x + 1)(x + 4)$</p> <p>② $3np - 15p + 4n - 20$ $3p(n - 5) + 4(n - 5)$ $= (n - 5)(3p + 4)$</p> <p>③ $3a^2 - 3a - 4a + 4$ $3a(a - 1) - 4(a - 1)$ $= (a - 1)(3a - 4)$</p> <p>④ $15a - 3ab + 4b - 20$ $3a(5 - b) - 4(5 - b)$ $= (5 - b)(3a - 4)$</p> <p>⑤ $2xy - 2y + 7x - 7$ $2y(x - 1) + 7(x - 1)$ $= (x - 1)(2y + 7)$</p> <p>⑥ $a - 2ab + 8b - 4$ $= a(1 - 2b) - 4(1 - 2b)$ $= (1 - 2b)(a - 4)$</p>
<p><i>Connections, Summary, Reflection, Analysis:</i></p>	

Solving Polynomial Functions in Factored Form	Name _____ Date <u>3/18/13</u> Block _____
<p><i>Question/Main Ideas:</i></p> <p>STANDARD Form</p> <p>Factored Form</p> <p>Zero-Product Property</p> <p>Solutions of a Quadratic Functions</p> <p>Example 1: Solving in Factored Form Solve.</p> <ol style="list-style-type: none"> $(x-4)(x+1) = 0$ $(x+3)(x-2) = 0$ $(2x+3)(3x-2) = 0$ $2x(3x+6) = 0$ <p>Try These...</p> <ol style="list-style-type: none"> $(x-4)(5x-7) = 0$ $x(x-5) = 0$ <p>Example 2: Solving with Repeated Factors Solve.</p> <ol style="list-style-type: none"> $(x+8)^2 = 0$ $(3x-5)^2 = 0$ <p>Try These...</p> <ol style="list-style-type: none"> $(x-5)^2 = 0$ $(2x+1)^2 = 0$ 	<p><i>Notes:</i></p> <p>$2x^2 + 7x - 15 = 0$</p> <p>$(2x-3)(x+5) = 0$</p> <p>An expression written as the product of PRIME numbers and variables and no variable has an exponent greater than one.</p> <p>Let a and b be real numbers. If $ab = 0$, then $a = 0$ and $b = 0$</p> <p>The solutions are the same as zeros, roots, and X-intercepts.</p> <p>For a video demonstration of solving polynomials in factored form, check out this link: http://www.youtube.com/watch?v=7418itgNDwc</p> <p>① $(x-4)(x+1) = 0$ then $x-4=0$ or $x+1=0$ $\begin{array}{r} +4 \\ x-4=0 \\ \hline x=4 \end{array}$ or $\begin{array}{r} -1 \\ x+1=0 \\ \hline x=-1 \end{array}$</p> <p>② $(x+3)(x-2) = 0$ then $x+3=0$ or $x-2=0$ $\begin{array}{r} -3 \\ x+3=0 \\ \hline x=-3 \end{array}$ or $\begin{array}{r} +2 \\ x-2=0 \\ \hline x=2 \end{array}$</p> <p>③ $(2x+3)(3x-2) = 0$ then $2x+3=0$ or $3x-2=0$ $\begin{array}{r} -3 \\ 2x+3=0 \\ \hline 2x=-3 \\ \frac{2x}{2} = \frac{-3}{2} \\ x = -\frac{3}{2} \end{array}$ or $\begin{array}{r} +2 \\ 3x-2=0 \\ \hline 3x=2 \\ \frac{3x}{3} = \frac{2}{3} \\ x = \frac{2}{3} \end{array}$</p> <p>④ $2x(3x+6) = 0$ then $2x=0$ or $3x+6=0$ $\begin{array}{r} 2 \\ 2x=0 \\ \hline x=0 \end{array}$ or $\begin{array}{r} -6 \\ 3x+6=0 \\ \hline 3x=-6 \\ \frac{3x}{3} = \frac{-6}{3} \\ x = -2 \end{array}$</p> <p>⑦ $(x+8)^2 = 0$ so $(x+8)(x+8) = 0$ then $x+8=0$ $\begin{array}{r} -8 \\ x+8=0 \\ \hline x=-8 \end{array}$ <i>multiplicity of 2</i></p> <p>⑧ $(3x-5)^2 = 0$ so $3x-5=0$ $\begin{array}{r} +5 \\ 3x-5=0 \\ \hline 3x=5 \\ \frac{3x}{3} = \frac{5}{3} \\ x = \frac{5}{3} \end{array}$ <i>w/ multiplicity of 2</i></p>
<p><i>Connections, Summary, Reflection, Analysis:</i></p>	

Question/Main Ideas:	Notes:
<p><u>Example 3:</u> Solving in Cubic Functions Solve.</p>	<p>(11) $3x-2=0$ or $4x+8=0$ or $x+4=0$ $\frac{+2+2}{3x=2}$ $\frac{-8-8}{4x=-8}$ $\frac{-4-4}{x=-4}$ $\frac{3x=2}{3 \quad 3}$ $\frac{4x=-8}{4 \quad 4}$ $\boxed{x=-4}$ $\boxed{x=\frac{2}{3}}$ or $\boxed{x=-2}$ or</p>
<p>11. $(3x-2)(4x+8)(x+4)=0$ 12. $(2x+1)(3x-2)(x-1)=0$ 13. $x(x-2)(2x-1)=0$</p>	<p>(13) $\boxed{x=0}$ or $x-2=0$ or $2x-1=0$ $\frac{+2+2}{x=2}$ or $\frac{+1+1}{2x=1}$ $\boxed{x=2}$ or $\frac{2x=1}{2 \quad 2}$ $\boxed{x=\frac{1}{2}}$</p>
<p><u>Example 4:</u> Finding x-intercepts Find the <u>x-intercepts</u>.</p>	<p>(14) x-ints: $x-4=0$ or $x+2=0$ $\frac{+4+4}{x=4}$ $\frac{-2-2}{x=-2}$ $\boxed{x=4}$ $\boxed{x=-2}$ $(4,0)$ $(-2,0)$</p>
<p>14. $y=(x-4)(x+2)$ 15. $y=(4x-3)(5x+2)$</p>	<p>(15) x-ints: $4x-3=0$ or $5x+2=0$ $\frac{+3+3}{4x=3}$ $\frac{-2-2}{5x=-2}$ $\frac{4x=3}{4 \quad 4}$ $\frac{5x=-2}{5 \quad 5}$ $\boxed{x=\frac{3}{4}}$ or $\boxed{x=-\frac{2}{5}}$</p>
<p><u>Example 5:</u> A Quadratic Model</p>	<p>(16)  $y = -1.8(x-2)(x+2)$ $x-2=0$; $x+2=0$ $\frac{+2+2}{x=2}$ $\frac{-2-2}{x=-2}$ $x=2$ $x=-2$</p>
<p>16. An arched garden trellis modeled by: $y = -1.8(x-2)(x+2)$, with x and y both in feet. How wide is the arch at the base? How high is the arch? 17. An entrance of an underpass contains an arch that is modeled by $y = -0.2(x-10)(x+10)$, with x and y both in feet. How wide is the arch at the base? How high is the arch?</p>	<p>Try these on your own.</p> <p>18. $(x-9)(x-7)=0$ 19. $(x+2)^2=0$ 20. $3x(2x+5)(5x-1)=0$</p>
<p>Connections, Summary, Reflection, Analysis:</p>	<p>height of the trellis is 7.2ft</p>



Name _____ Date _____ Block _____ Score _____

HW: 8-2 Solving Polynomial Functions in Factored Form*Factor by grouping. Check.*

1. $x^2 + 3x + x + 3$

2. $b^2 - 2b + 3b - 6$

3. $6x^2 - 4x - 3x + 2$

Solve the equation.

4. $(x + 2)(x - 3) = 0$

5. $(w - 17)^2 = 0$

6. $(4x - 8)(7x + 9) = 0$

7. $(6b - 5)(2b + 1)(2b - 1) = 0$

8. $x(x - 32) = 0$

9. $4b(b + 4) = 0$

Find the x-intercepts.

10. $y = (x + 5)(x + 3)$

11. $y = (3x + 5)(x - 2)$

12. An arched garden trellis modeled by $y = -1.5(x - 8)(x + 8)$, with x and y both in feet.

a) How wide is the arch at the base?

b) How high is the arch?

Factor each polynomial using the distributive property.

13. $6r^2t - 3rt^2$

14. $15ad + 30a^2d^2$

15. $32a^2 + 24b^2$

16. $9ax^3 + 18bx^2 + 24cx$

17. $8p^2r^2 - 24pr^3 + 16pr$

18. $5x^3y^2 + 10x^2y + 25x$