

$$48/48 = 100$$

Math 0097
University of North Georgia
Spring 2015
Exam #3

Name: Key Date: April 22, 2015

Factor the following completely. *Hint: think the Distributive Tool!*

1. $30x - 15$ $ACF = 15$
 $15(2x - 1)$

2. $6x^3 - 9x^2 + 12x$ $ACF = 3x$
 $3x(2x^2 - 3x + 4)$

3. $a^7b^6 - a^3b^2 + a^2b^5 - a^2b^2$ $ACF = a^2b^2$
 $a^2b^2(a^5b^4 - a + b^3 - 1)$

4. $z(y+4) - (y+4)$ $ACF = (y+4)$
 $(y+4)(z-1)$

Factor the four-term polynomial by *Grouping*.

5. $\boxed{x^3 + 4x^2} + \boxed{3x + 12}$
 $x^2(x+4) + 3(x+4)$

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

↳ note: Not a Difference of Two Squares!

Factor each trinomial completely. If it is not factorable, show why and write *Relatively Prime*.

6. $x^2 - 8x + 15$ $ac = 15$ $b = -8$ $\begin{array}{c|c} - & - \\ \hline 5 & 3 \end{array}$

$$(x - 5)(x - 3)$$

7. $x^2 + 4x - 10$ $ac = -10$ $b = 4$ $\begin{array}{c|c} + & - \\ \hline 5 & 2 \\ 10 & 1 \end{array}$ $\begin{array}{cc} P & S \\ \checkmark & X \\ \checkmark & X \end{array}$

$$(x + \quad)(x - \quad)$$

Relatively Prime

8. $x^2 + 7xy + 10y^2$ $ac = 10$ $b = 7$ $\begin{array}{c|c} + & + \\ \hline 5 & 2 \end{array}$

$$(x + 5y)(x + 2y)$$

9. $3y^2 - 5y - 8$ $ac = -24$ $b = -5$ $\begin{array}{c|c} - & + \\ \hline 8 & 3 \end{array}$

$$3y^2 - 8y + 3y - 8$$

$$y(3y - 8) + 1(3y - 8)$$

$$(3y - 8)(y + 1)$$

10. $6x^2 - 2x - 20$ $ac = -120$ $b = -2$ $\begin{array}{c|c} - & + \\ \hline 12 & 10 \end{array}$

$$6x^2 - 12x + 10x - 20$$

$$6x(x - 2) + 10(x - 2)$$

$$(x - 2)(6x + 10)$$

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

Solve the equation.

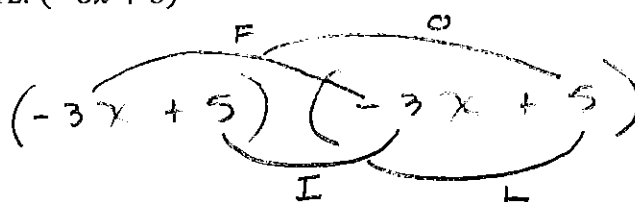
11. $2(3y - 4) = 6 + 7y$

$$6y - 8 = 6 + 7y$$

$$-14 = y$$

Multiply

12. $(-3x + 5)^2$



The diagram shows the FOIL method for multiplying $(-3x + 5)(-3x + 5)$. The first binomial is $(-3x + 5)$ and the second is $(-3x + 5)$. Curved lines connect the terms: 'F' (First) connects $-3x$ to $-3x$; 'O' (Outer) connects $-3x$ to 5 ; 'I' (Inner) connects 5 to $-3x$; and 'L' (Last) connects 5 to 5 . To the right of the diagram, the letters 'FOIL' are written.

$$F: (-3x)(-3x) = 9x^2$$

$$O: (-3x)(5) = -15x$$

$$I: (5)(-3x) = -15x$$

$$\left. \begin{array}{l} -15x \\ -15x \end{array} \right\} -30x$$

$$L: (5)(5) = 25$$

$$9x^2 - 30x + 25$$