

## Unit 3: Polynomials

### Day 7: Complex Trinomial Factoring....other methods

Today we will....

1. Learn the Australian Method for factoring complex trinomials ( $a \neq 1$ )
2. Learn the Cross-Product Method for factoring complex trinomials ( $a \neq 1$ )

Australian Method

$$6x^2 + 5x + 1$$

$$\underline{ax^2 + bx + c}$$

**Step 1:** Find Product  $ac$

**Step 2:** Find factors of  $ac$  that sum to  $b$

**Step 3:** Create a fraction using the following rules....

- Numerator: Write brackets with  $ax$  as the first term in each bracket and the factors of  $ac$  as the second term in each bracket.
- Denominator:  $a$

**Step 4:** Common factor the binomials in the numerator. Note: this is where you can check if you are correct....the common factors MUST multiply to give the denominator!

**Step 5:** Divide out the common factors from the numerator and the denominator and write the simplified binomial.

Examples: Use the Australian Method to factor the following.

1.  $2x^2 + x - 6$

2.  $5x^2 - 14x + 8$

3.  $15x^2 + 4x - 4$

## Cross-Products Method

$$\underline{ax^2 + bx + c}$$

$$5x^2 + 16x + 3$$

**Step 1:** Draw a dotted line under the middle term.

**Step 2:** Put the factors of  $a$  in columns on the left side (under  $a$ )

**Step 3:** Put the factors of  $c$  in columns on the right side (under  $c$ )

**Step 4:** Choose the side with the fewest number of columns to 'flip' the factors into more columns.

**Step 5:** Using mental mathematics, multiply the cross product of each row on either side until you find the sum  $b$ .

**Step 6:** Put brackets across rows to indicate where you found the desired cross product.

**Step 7:** Write the factored form of the polynomial.

Examples: Use the Cross-Products Method to factor the following.

1.  $3x^2 - 11x - 4$

2.  $10x^2 + x - 3$

3.  $18x^2 - 3x - 10$

Homework:

Worksheet "Drawing Squares on Dracula"  
Additional Practicepg. 307 #6

## Attachments

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Factor\_Trinomial.pdf