

MAT 121**Writing Projects for College Algebra**

Write on only one side of each page. I will not award (or deduct) points for anything written on the backs of pages. Paper without lines (copier paper). Staple top left corner. Leave margins.

Project #1: The three ways to solve a quadratic equation are:

1. Factoring
2. Completing the Square
3. Quadratic Formula

Solve both of the following quadratic equations *in all three ways*:

1. $x^2 - 7x - 18 = 0$
2. $60x^2 - 112x - 135$

Solve the quadratic equation by *quadratic FORMULA and completing the square*:

3. $9x^2 - 18x + 2$

Discuss the advantages and disadvantages of each method, when one method might be preferred over another. I'm looking for about a page on this, and I'm expecting you to use *paragraphs*.

Project #2: Completing the Square to Graph a Quadratic Function

Complete the square for each of the following and graph the function by transforming the basic function $f(x) = x^2$, using Section 1.5 techniques.

1. $f(x) = x^2 - 7x - 18$
2. $g(x) = 60x^2 - 112x - 135$
3. $h(x) = 9x^2 - 18x + 2$

Project #3: Take-Home Portion of Test 3.

1. I'll send you e-copy in e-mail. You will turn it in when you come to take the sit-down version of Test 3.
2. Counts 20% of Test 3 grade.

Project #4: The Three Kinds of Linear System.

1. Submit three examples of linear systems in *three variables* and solve them using Elimination Method. Matrix Methods are optional (just a different version of elimination).
 - a. One system must be inconsistent.
 - b. One system must be consistent, with infinitely many solutions.
 - c. One system must be consistent, with a *unique* solution.
2. Discuss each system in a few sentences.