

## ARCH 614. Examples of Work

The format required by the syllabus for the assignments (see below) is enforced in order for you to practice organization with respect to problem solving (as well as necessary record keeping).

Although it isn't specified in the policy, it is a good idea to number your pages of work, include your name on each page, and the assignment number. If the assignment number is missing, *the grade for the assignment will most likely not get recorded.*

Syllabus policy:

- 4) **Assignments:** Due as stated on the assignment statements. One late assignment (without University excuse) will be "pardoned" if turned in no later than one week after the due date. All other assignments and projects will receive no credit if late without a recognized excuse. Assignments with incorrect formatting will be penalized.

*Format:*

Date	Name	Course
Given:		
Find:		
Solution:		
:		

This sample of work, ranging from bad formatting, to sloppiness, to clear and orderly is intended for you as a standard of what level of quality you should be striving after.

### Examples:

#### 1. Problem: Missing Format (Figure 1)

Probable causes: Lack of attention to requirements or detail, not hearing the requirement that was repeatedly stated

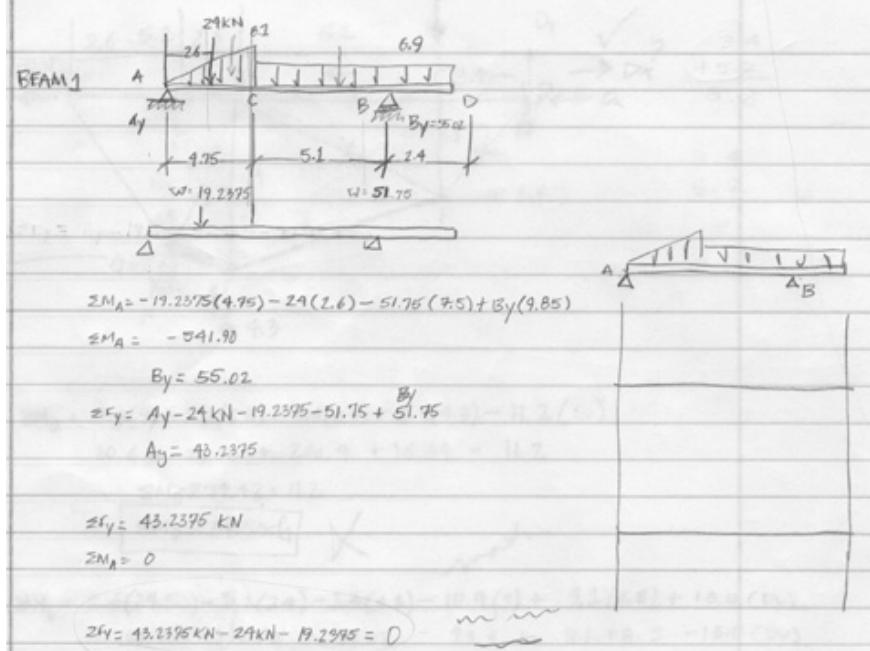
Result: lost credit for up to 30 percent of the percent effort listed (i.e.  $0.7 \times 15\% = 10.5\%$  or about 5% lost)

#### 2. Problem: Missing Work (Figure 1)

Probable causes: Failing to print out the assignment statements, failure to read all the problems required (particularly in the case of multiple pages), failure to seek help at all or in time if "stuck", lack of motivation, incompletely "transcribing" group work

Result: no credit

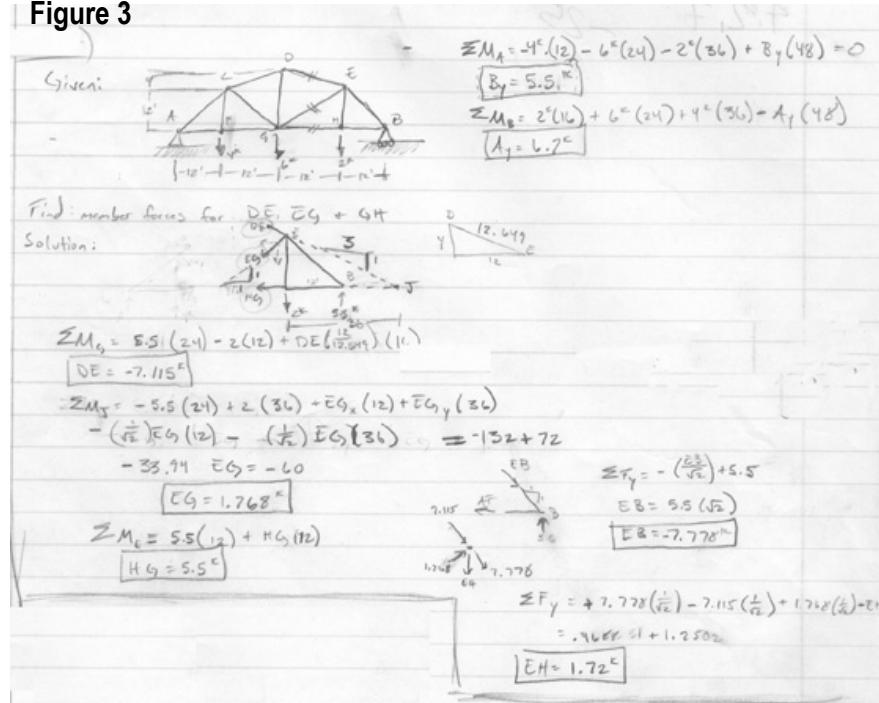
**Figure 1**



### 3. Problem: Poor Order of Presentation (Figure 3)

Probable causes: Use of any available blank space on the page, assumption that a grader “knows” what the student is doing next and can correspondingly jump around on the page, completing steps at different times

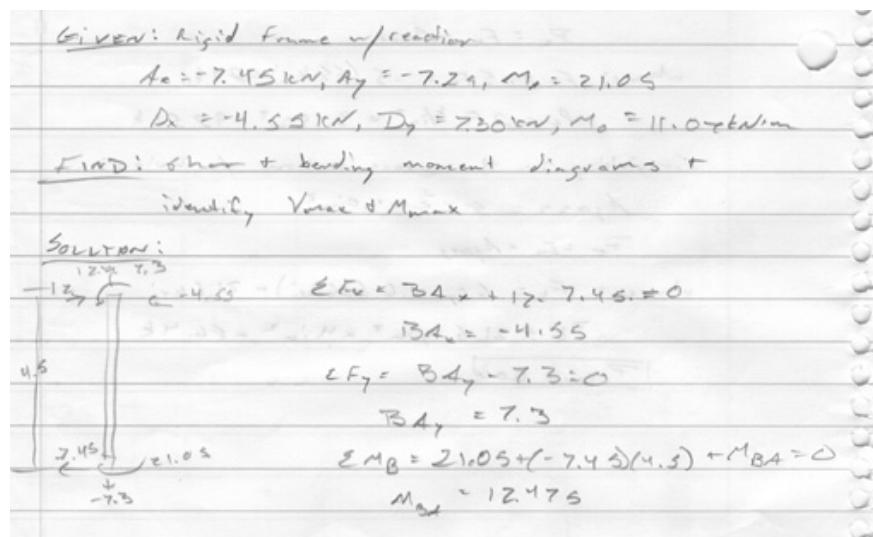
Result: The grader is very likely to put the assignment in the “I don’t look forward to grading this!” pile to be graded last. The time involved to find the pieces makes a tired grader more likely to not spend “extra” time finding the correct parts and they will be marked as missing or incorrect.

**Figure 3**

### 4. Problem: Illegible Handwriting (Figure 4)

Probable causes: Poor hand/eye coordination, poor writing instruments, poor lighting, poor penmanship in primary school

Result: The grader is very likely to put the assignment in the “I don’t look forward to grading this!” pile to be graded last. If the solution information is not readable, it will be marked as incorrect.

**Figure 4**

### 5. Problem: Messy Work (multiple scribbles or strikethroughs) (Figure 5)

Probable causes: Use of pen or combination of pen and pencil, multiple erasures at the same place on the paper with an inadequate eraser, having no eraser, lack of concern over graphic “design” of presentation

Result: The grader is very likely to put the assignment in the “I don’t look forward to grading this!” pile to be graded last. The time involved to find the pieces makes a tired grader more likely to not spend “extra” time finding the correct parts and they will be marked as missing or incorrect.

**Figure 5**

SOLUTION  
Support reactions

$$\sum F_x = 6^k - B_x = 0 \quad B_x = 6^k \quad A_x = 0$$

$$\sum F_y = -24^k + A_y - 12^k + B_y = 0$$

$$\sum M_B = -6^k(12) + 24(24) - 12(6) = A_y(36) = 0 \quad A_y = 12^k$$

$$B_y = 24^k$$

$$\sum F_x = -B_x + ED = 0 \quad B_x = -6^k \quad ED = 6^k$$

$$\sum F_y = 24(12) - DE(12) - 6(12) - A_y(24) = 0 \quad DE = -16^k$$

$$\sum M_A = 6(12) - 6(12) - DE(12) = 0$$

$$\sum M_D = 24(6) - GH(12) - A_y(8) = 0 \quad GH = 6^k$$

$$\sum M_G = -6(12) - 12(12) - DE(12) - DH = 0 \quad DH = -13.4^k$$

### 6. NOT A PROBLEM!: Nice, orderly, clear work with answers clearly marked (Figure 6)

Probable causes: Attention to detail and instructions, good eraser available, uses the room on the paper in a sequential order down the page, works on one side of the paper only, uses graph paper rather than lined composition paper

Result: The grader will gladly grade an “easy” paper to grade and assign it the highest marks possible.

**Figure 6**

Diagram showing a truss structure with dimensions: UK = 12 k, DE = 12 k, GH = 12 k, and DH = 12 k. The height of the truss is 24 k.

$$\sum M_D = -(12)(18) + (24)(6) + GH(12) = 0$$

$$-72 + GH(12) = 0 \quad GH = 6^k$$

$$\sum M_H = -12(24) + (24)(12) - (6)(12) - DE(12) = 0$$

$$-72 = DE(12) \quad DE = 6^k$$

$$\sum F_y = DH(12/13.4) + 24k - 12k = 0$$

$$DH = -13.4^k$$