

**MATH 241 – CALCULUS III**  
**MATLAB PROJECT #1 – DUE OCTOBER 4**

**Instructions.** This project is to be done using MATLAB. Use the **diary** command to save your work. Edit the saved file to include your name, problem numbers, and the answers to any questions asked in the problems. You should also hand in your printed output. Note that you can use the **help** command to learn about other commands (e.g. **help cross**).

- (1) Enter  $u = [2 \ 4 \ 7]$ ; and  $v = [1 \ -1 \ 7]$ ; Then enter the following (one at a time, without semicolons):

```
>> u + v  
>> dot(u, v)  
>> cross(u, v)
```

Interpret the output.

- (2) Here we use the **plane** command. Enter the following:

```
>> p = [2 3 -1];  
>> n = [-4 1 2];  
>> plane(p, n)
```

Print and interpret the picture you obtain.

- (3) Use MATLAB to find the equation of the plane containing the lines

$$\frac{x-2}{4} = \frac{y-3}{5} = \frac{z+2}{3} \quad \text{and} \quad \frac{x}{2} = \frac{y+2}{3} = z+1$$

- (4) Use MATLAB to find the area of the triangle with vertices  $(3, 1, 0)$ ,  $(1, 2, 3)$ , and  $(0, -1, -2)$ .