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AE 227 – Engineering Digital Computation

2/11/2023

**Program 1:**

Output to the command window:

f(1.6) = -138.6721

g(1.8,-4.2) = -9.0237

h(3.1,-0.3,4.5) = -0.5838

f(g(2.5,-0.4) = 0.0025

g(f(1.3),g(1,f(-0.7))) = -8.9383

f(f(-1.3)) = -1.5393

>>

**Program 2:**

Output with an altitude of 34500 ft. and an airspeed of 705 mph:

Enter the air speed (mph): 705

Enter the altitude (ft): 34500

At an air speed of 705 mph and at altitude of 34500 ft,

the Mach number is 2.37.

>>

This makes sense because 705 miles an hour is pretty fast, and it’s at a decently high altitude.

Output with an altitude of -50 ft. and an airspeed of 705 mph:

Enter the air speed (mph): 705

Enter the altitude (ft): -50

At an air speed of 705 mph and at altitude of -50 ft,

the Mach number is 0.00.

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While I think this is an error, it is technically correct because there is nowhere on earth you can get a plane to go 705mph underground.

Output with an altitude of 350000 ft. and an airspeed of 705 mph:

Enter the air speed (mph): 705

Enter the altitude (ft): 350000

At an air speed of 705 mph and at altitude of 350000 ft,

the Mach number is 0.00.

>>

This makes sense because at 350000ft you are in space, and there is no sound in space.