This assignment is due on Thu, 02/Nov, at the start of your computer lab. Make sure that you have printed out your diary (.txt) and graphics (.eps) files in advance!

**Problem 1**

Draw the surface of the solid bounded above by the red hyperbolic paraboloid \( z = 24 + x^2 - 2y^2 \) and below by the green elliptic paraboloid \( z = 5x^2 + 2y^2 - 12 \). Also draw the blue curve of intersection of these two paraboloids. Finally, compute the volume of the solid using cylindrical coordinates.

NOTE: You may compute the volume on your TI-89 first so as to practice for exams or quizzes.

**Problem 2**

Use `hvsd` to draw the surface \( z = 4 + \sin x - \cos y \) lying over the triangular region with vertices \( A(1, 1), B(6, 4), \) and \( C(1, 8) \) in the \((x, y)\)-plane. Also draw the filled parameter region in green.

**Problem 3**

Produce the graph (offset sphere + half-cone) for 854/21 in the 13.10 lecture handout, q.v.

**Problem 4**

Produce the right graphs (the box and the “cauldron”) for Example A in the 13.11 lecture handout, q.v.

**Problem 5**

Produce the graph for 854/18 (concentric spheres in first octant) in the 13.10 lecture handout, q.v.