1. **VECTOR POTENTIALS**

   Consider the 2-form $\beta = 2yz\,dy \wedge dz + 2xz\,dz \wedge dx + 2xy\,dx \wedge dy$.

(a) Is β *closed*, that is, does $d\beta = 0$?

(b) Is β *exact*, that is, does there exist a 1-form α such that $d\alpha = \beta$?

   If β is not exact, explain why. If β is exact, find the most general solution α.

(c) What problem in vector calculus have you solved?