



## Question

Which of these word problems could the equations

$$\nabla(x + y + z) = \lambda \nabla(x^2 + y^2 + z^2 - 1) \text{ and } x^2 + y^2 + z^2 - 1 = 0$$

be used to solve?

- A. Find the maximum of the temperature function  $f(x, y, z) = x + y + z$  over the unit sphere centered at the origin.
- B. Find the maximum of the temperature function  $f(x, y, z) = x^2 + y^2 + z^2 - 1$  over the plane  $x + y + z = 0$  in space.
- C. Find the minimum of the temperature function  $f(x, y, z) = x + y + z$  over the surface given by the equation  $x^2 + y^2 + z^2 = 1$ .
- D. More than one of the above.