Exercise 2

A field $\mathbf{v}(x, y, z)$ is said to be *irrotational* if $[\nabla \times \mathbf{v}] = 0$. Which of the following fields are irrotational?

(a) $v_x = by$  $v_y = 0$  $v_z = 0$
(b) $v_x = bx$  $v_y = 0$  $v_z = 0$
(c) $v_x = by$  $v_y = bx$  $v_z = 0$
(d) $v_x = -by$  $v_y = bx$  $v_z = 0$