Find <u>the curl</u> and <u>the divergence</u> of the given vector field (Problem 9, page 484)

$$F(x, y, z) = 4xy\vec{i} + (2x^2 + 2yz)\vec{j} + (3z^2 + y^2)\vec{k}$$

Based on your result of the curl, the flow of the fluid is <u>irrotational or rotational</u> ?

For the point (0,0,0), is it <u>a source or a sink</u> for the given vector field ?

$\boxed{ANS}$  $curl\ F = 0$, irrotational

$div\ F = 4y + 8z$,  $div\ F(0,0,0) = 0$, it is not a source or a sink.