

## Problems: Divergence Theorem

Let  $S_1$  be the part of the paraboloid  $z = 1 - x^2 - y^2$  which is above the  $xy$ -plane and  $S_2$  be the unit disk in the  $xy$ -plane. Use the divergence theorem to find the flux of  $\mathbf{F}$  upward through  $S_1$ , where  $\mathbf{F} = \langle yz, xz, xy \rangle$ .

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