Tapp 3.85

Let S be the graph of the equation $z = xy$ classify the linear rigid motions of $\mathbb{R}^3$ that induce isometries of S.

we have that $\sigma(u,v) = (u, v, uv)$ defines the surface patch for the surface created. we know that the surface is a regular surface because ✱ u, v, uv are smooth.

Now we want to "classify" the linear rigid motions that induce isometries.

From the first problem we already showed that if f is a rigid motion then $f(S)$ is an isometry for a regular surface S.

The linear rigid motions are L_A w/ $A \in O(3)$ since T_q translations aren't linear.

The question also mentions in parentheses that it wants only the isometries that map S to itself.