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X = (m - 2)x + 2y - z \\
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Z = 2mx + 2(m + 1)y + (m + 1)z
$$

Show that the rank of $f$ is equal to 3 except for particular values of $m$ and determine these particular values. Find the ranks for these values and define the subspace $f(\mathbb{R}^3)$. 

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