

TD 1 – LINEAR ALGEBRA

(1) Are the following sets vector spaces?

(a) $V_1 = \{(x, 2x + z - 1, z); x, z \in \mathbb{Q}\}$

(b) $V_2 = \{(x, y, z); x, y, z \in \mathbb{Q}, y \cdot z = 0\}$

(c) $V_3 = \{(x, x + z, x - 2z); x, z \in \mathbb{Q}\}$

(2) Find a generating system for the vector space $V_4 = \{(x, x + y, x - y); x, y \in \mathbb{Q}\}$.