$\boxed{3.2.42.}$ $a \in \mathbb{R}$ a.î. $V = \{v_1, v_2, v_3\}$

$v_1 = (a, 1, 1)$
$v_2 = (1, a, 1)$, V bază
$v_3 = (1, 1, a)$

V bază $\Rightarrow$ V liniar independentă

fie $\alpha_1, \alpha_2, \alpha_3$ a.î. $\alpha_1 v_1 + \alpha_2 v_2 + \alpha_3 v_3 = 0$

$\Rightarrow \alpha_1(a, 1, 1) + \alpha_2(1, a, 1) + \alpha_3(1, 1, a) =$
$= (\alpha_1 a + \alpha_2 + \alpha_3, \alpha_1 + \alpha_2 a + \alpha_3, \alpha_1 + \alpha_2 + \alpha_3 a) = (0, 0, 0)$

$$\Rightarrow \begin{cases} \alpha_1 a + \alpha_2 + \alpha_3 = 0 \\ \alpha_1 + \alpha_2 a + \alpha_3 = 0 \\ \alpha_1 + \alpha_2 + \alpha_3 a = 0 \end{cases} \oplus$$

$\alpha_1(a+2) + \alpha_2(a+2) + \alpha_3(a+2) = 0$
$\Rightarrow (a+2)(\alpha_1 + \alpha_2 + \alpha_3) = 0$

I $a + 2 = 0 \Rightarrow a = -2 \Rightarrow \exists\ \alpha_1, \alpha_2, \alpha_3$ a.î. $\alpha_1, \alpha_2, \alpha_3 \neq 0$
și $\alpha_1 v_1 + \alpha_2 v_2 + \alpha_3 v_3 = 0 \Rightarrow$ V nu e bază
$\Rightarrow a \neq -2$

II $\alpha_1 + \alpha_2 + \alpha_3 = 0 \Rightarrow \alpha_1 = -\alpha_2 - \alpha_3$

$$\Rightarrow \begin{cases} a(-\alpha_2 - \alpha_3) + \alpha_2 + \alpha_3 = 0 \\ -\alpha_2 + \alpha_2 a = 0 \Rightarrow \alpha_2(a-1) = 0 \\ -\alpha_3 + \alpha_3 a = 0 \Rightarrow \alpha_3(a-1) = 0 \end{cases}$$

i) $a - 1 = 0 \Rightarrow$ V liniar dependentă $\Rightarrow$ V nu e bază
$\Rightarrow a \neq -1$

iii) $a-1\neq 0 \Rightarrow \alpha_2=\alpha_3=0$

dar $\alpha_1=-\alpha_2-\alpha_3=-0-0=0$

$\Rightarrow$ v liniar independentă

$\langle v\rangle=\{\alpha_1 v_1+\alpha_2 v_2+\alpha_3 v_3 \mid \alpha_1,\alpha_2,\alpha_3\in\mathbb{R}\}=$

$=\{(\alpha_1 a+\alpha_2+\alpha_3,\ \alpha_1+\alpha_2 a+\alpha_3,\ \alpha_1+\alpha_2+\alpha_3 a)\mid \alpha_1,\alpha_2,\alpha_3\in\mathbb{R}\}=\mathbb{R}^3$

$\Rightarrow$ v e bază pentru $\forall\ a\in\mathbb{R}\setminus\{-2,1\}$