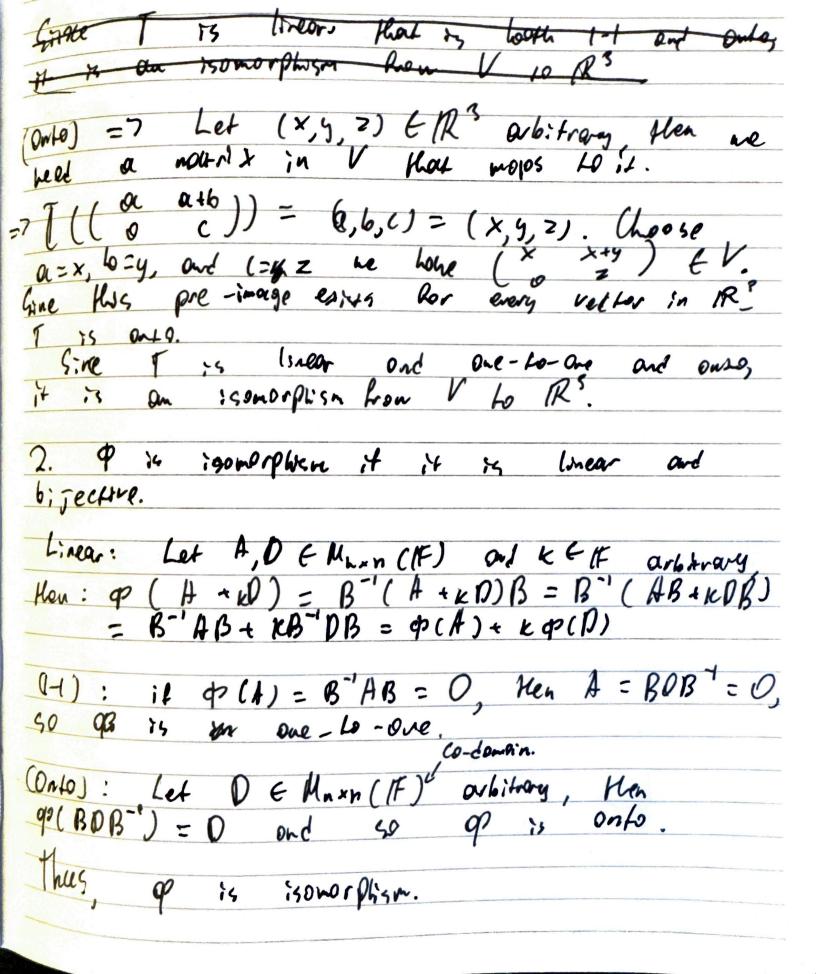
Pale: 8-18-2025 Moutin Cherry arrang 1. Let T: V-7 1R3 debred by: T((a asb)) We must show that this map is isomorphism. To prove it is trear, let XX & V ound with K & R purbitrary. Then X = (at a stoi) and V = (at a stoi) Hen: $T(KX+Y) = T(Ka_1+a_2 Ka_1+a_2+Kb_1+b_2)$ = (KQ, +Q2, K6, +62, KE, +(2) KTexznat = $K(a, 6, C,) + (a_2 *, b_2, l_2)$ = K(X) + T(Y)1-1 oud only Ve need to show that 19 to be 150 morphin.
(1-1) => T((a a+6)) = (a,6,C) = (0,0,0) => a=6=c=0, 40 N(T) = \(\begin{array}{c} \columbda \\ \columbda \end{array} hence I is one to one.



3) False, it should be Ex:]B b) [ree by Thm. 2.22.

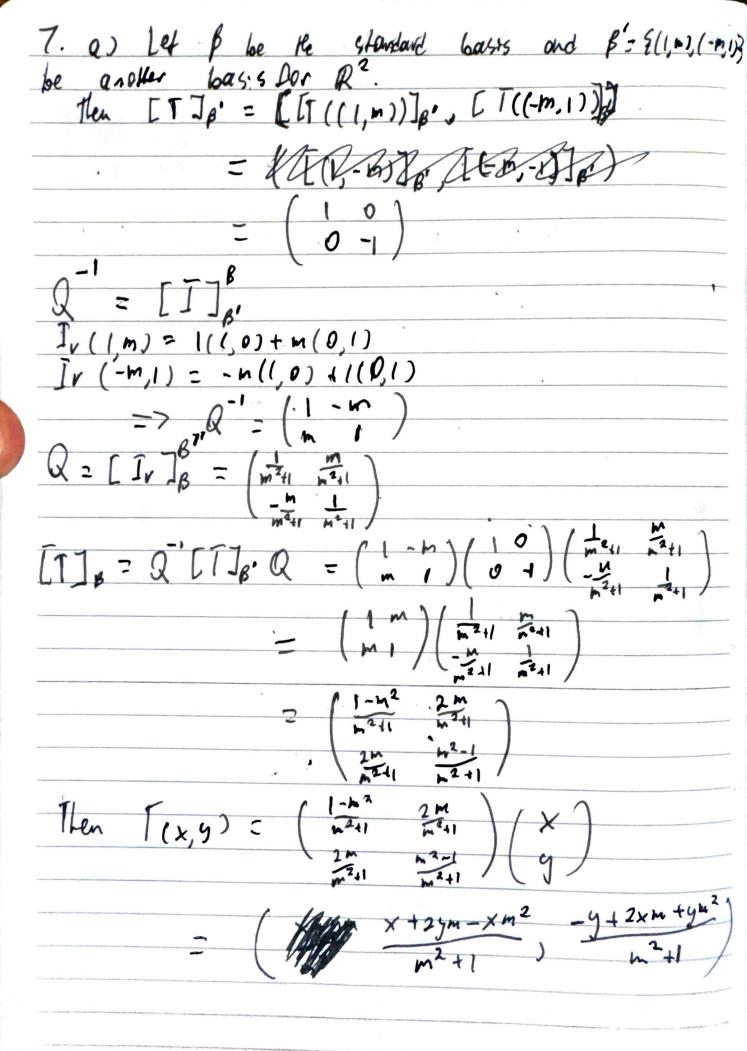
C) True by Thm. 2.23.

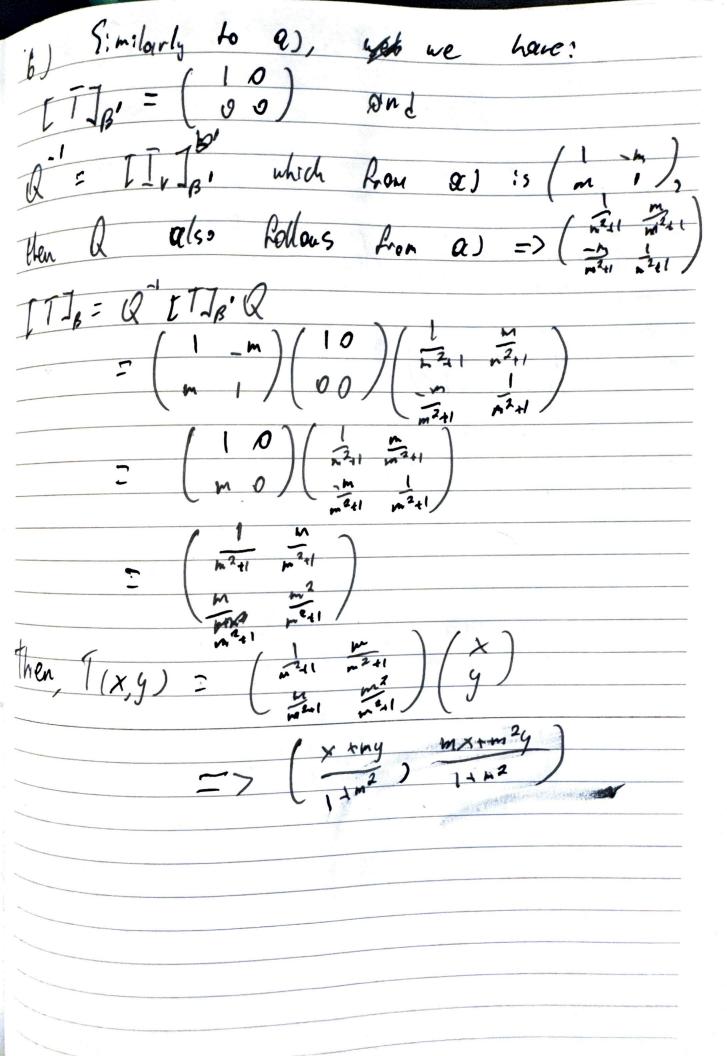
d) False, it should be B = Q fQ

e) True, follows from thm 2.23 are deln. of girilor, notrix representation of the same linear exercision wiris. Le diff bases are velocité les conjugates with invertible change at constraine making. 4. w Q = [TV]B' a) Q=[IR]B => $V(Q_1,Q_2) = Q_1(1,0) + Q_2(0,1) = Q_1 e_1 + Q_2 e_2$ $\exists v(b_1, b_2) = b_1(1,0) + b_2(0,1) = b_1 e_1 + b_2 e_2$ $g = [a_1 \ b_1] \rightarrow [(a_1, a_2)_{\beta} = (a_1), [(b_1, b_2)]_{\beta} = (b_1)$ 6) \$ [v(0,10) = Q(-1,3) + 6(2,-1) -a + 26=0 a - 26=0 a-26=0
3a - 6=10 ~ 3a-6=10 ~ 56=10 Iu(6,0) = a(-1,3)+6(-2,-1) -7 Q=2 -9.426 = 5 0.26 = -5 0.26 = -6 30.-6 = 0 30.-6 = 0 56 = 15Q=4 [[refore, Q=[23]->([0,10)]=-(4), [.(5,0)]=-(8) () $J_{V}(1,0) = 9(2,5) + 6(-1,-3)$ $2\alpha - 6 = 1$ $5\alpha - 36 = 0$ $-\alpha = -3$

$$\begin{split} & | (0,1)^2 = Q(2,6) + b(-1,-3) \\ & | (2a-b)=0 \\ & | (2a-b)=0$$

the change of boasis horizonala is the IB = R HR where is representation of LA is thousand boass and it thouse of boass are vectors of boasis B. $(1), (2)^{2}$ so Q = (12)or, [11/10] >[al]. 1 ~ [| | | | | | | | $= \left(\begin{array}{c} 15 \\ 0 - 2 \end{array}\right) \left(\begin{array}{c} 11 \\ 12 \end{array}\right)$





We will use TRAFECASTE 8. 100 moutrix to Identity mouths x He following preparty to find inverse mourix: => (RREAN(A") : + RREF(A) = In Rz->R+h R2->R2-JR/ 001 R3-KIRI 001 01 100 10 R3-283-12h2 0 -20 RI-RI-RE 1001% R1-1R1-1R2 R3-72R3 / 12 b B

