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$+2l_1q_1d_2(q_1+q_2)[sin(q_1^2)sin(q_1^2+q_2)+cos(q_1^2)cos(q_1^2+q_2)]$	
$= l_1^2 q_1^{2} + d_2^2 (q_1^{2} + q_2^{2})^2 + 2l_1 q_1 d_2 (q_1^{2} + q_2^{2}) \cos(q_2)$	
$= 5 T = \frac{1}{2} m_1 \cdot d_1^2 q_1^2$	
$ + \frac{1}{2} \ln_2 \left(\frac{1}{1} q_1^2 + \frac{1}{2} \left(q_1 + q_2 \right)^2 + 2 \ln_1 q_1 d_2 \left(q_1 + q_2 \right) \cos(q_2) \right) $ $ + \frac{1}{2} \ln_1 q_1^2 + \frac{1}{2} I_2 \left(q_1 + q_2 \right)^2 $	
U= m1. g. (ys1) + m2.g. (ys2)	
= $m_1 g \cdot d_1 \sin(q_1^2) + m_2 \cdot g \cdot (l_1 \sin(q_1^2) + d_2 \sin(q_1^2 + q_2))$	
L= T- U	
$\frac{1}{2} m_1 \cdot d_1^2 q_1^2 + \frac{1}{2} m_2 \left(l_1^2 q_1^2 + d_2^2 (q_1 + q_2)^2 + 2 l_1 q_1^2 d_2 (q_1 + q_2) \cos(q_2) \right)$ $+ \frac{1}{2} I_1 q_1^2 + \frac{1}{2} I_2 \left(q_1^2 + q_2 \right)^2$	
- m1 y · d1 sin (q1) - m2 · g · (l1 sin (q1) + d2 sin (q1 + q2))	

					dz cos(qñ + qz	
				m2 g d2 cos		
8	9'L [M 2	$d_{2}^{2} + \underline{L}_{1}$ $d_{2}^{2} + \underline{m}_{2}$.)		+2 (91 (92)	
	t qi qiz [$m_2 d_2^2 + I_2$ $\begin{bmatrix} -m_2 l_1 d_2 \\ d_2^2 + m_2 l_1 \end{bmatrix}$	Siu(qe)]	J ₂ }		

3d'u =	vn, d, q, + = 1 m2 [21, q, + d, 2 2 (q, + q2) + 4 l, q, d, cos(q2)
	f 2l, dz q; cos(qz)] + I, q, + I, (q, +q2)
	q1 (m1 d12 + m2 (l12 + d2 + 2 l1 d2 cos(q2)) + I1 + I2)
	$4q_{2}(m_{2}(d_{2}^{2}+l_{1}d_{2}\cos(q_{2}))+I_{2})$
dt gan	= 97 (m, d,2 + m,2 (1,2 + d,22 + 21, d,2 cos (92)) + I, + I2)
	+ qi qi (-2 ladz mz sin(qz)) - qi mz ladzsin(qz)
	$1 q_2^{2} (m_2 (d_2^2 + \ell_1 d_2 \cos(q_2)) + \overline{I}_2)$
<u> </u>	atrix M = Veletor C

Д=	
my dy2 + m2 (112 + d22 + 211 d2 cos (921) + In + I2	$(m_2(d_2^2 + l_1d_2\cos(q_2)) + I_2)$
$\left[m_2 d_2^2 + m_1 l_1 d_2 \cos(q_2) + T_2 \right]$	[m2d2 + I2]
C 11 =	
$\frac{1}{2}$	()
+ 9, 92 (-2 ladz mz sin(92)) - 92 mz ladz	Sin (92)
+ cos(q1). (+ m1 gd1 + m2 gl	$(q_1^2 + q_2) (m_2 q_1 d_2)$
= - ladzmisin(q2) [2 qi qi + qi2]	
E10121112111121	
+ [cos(qi) (m,d, +m2l) + cos(qi+	a_1 (a_2) a_3
	1-1-17
C22 =	
+ 92 q2 [-m2l1d2Sin(q2)]	
+ m2 l, q, d2 (q, + q2) sin (q2) + m2 g d2 cos (q2	7 + 92)