1) Trum berogd for yricen when b X, y koparteeta X nomeny dalate nepolodis X = rwsp y = rsmp < 2 /2 > = 0 Mr zner < 2 1 0x > = 1 (3/18/2) -1 uneure robojel napa Berezob 2 (xayo) 2 (xay) Josephuspungabankul 4 neplas ofogra 20 1. dx2 +1. dy2 dx = cosp. dr - rshp. dq dy = smg. dr + rosp. dy dx + dy = dr 2 + r2 dy 2 = orber.

moxus ybudes no-gyporry:
400 varior de -200 nporsborred no v

$$f(x,y) = f(row, q, rsnq)$$

$$\frac{\partial}{\partial r} f = \frac{\partial f}{\partial x} \cdot \omega_{x} q + \frac{\partial f}{\partial y} \cdot snq$$

$$\Rightarrow \frac{\partial}{\partial p} f = \frac{\partial f}{\partial x} \cdot (rsnq) + \frac{\partial f}{\partial p} (rowq)$$

$$\Rightarrow \frac{\partial}{\partial p} f = \frac{\partial f}{\partial x} \cdot (rsnq) + \frac{\partial f}{\partial p} (rowq)$$

$$\Rightarrow \frac{\partial}{\partial p} = -rsnq \frac{\partial}{\partial x} + rpaq \frac{\partial}{\partial y}$$

$$\Rightarrow \frac{\partial}{\partial r} \cdot \frac{\partial}{\partial r} > = \omega_{x}^{2} q \cdot (rowq) + \omega_{x}^{2} \frac{\partial}{\partial r} > + \sin^{2} q \cdot (rowq) = 0.$$

$$(snq - (rowq) = 0.$$

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) = 10 0 = 10 2 = w>0 x = 62. 9. 27. Q y = snp-sn0  $\frac{\partial}{\partial y} = \frac{\partial}{\partial x} \cdot (-2M2 - ) \cdot \frac{\partial}{\partial y} \left( (-2M2 - ) \cdot \frac{\partial}{\partial y} \right)$ 2 = 0x (cosq. cosa) + 2/sing. cosa) + 2 (-sina) 2 2 07 07 - oprouptrydasered dyna & R O(N12 = D5/12 P5/12 P6/12 = < PG 1 PG > <= + les luis graphis - = < 861 gc >  $\omega$  so she was she =0. | = 0/112+ 0/20 p/12+ 0/20 p/200 = < 00 1 00 > => I -dobus = 2 xy,0 96, + 90,5 4000 pady skenepromence cyznar I oppry c 183 dx t= (-shpsholdp + uspusodo)+----= sin's dy? + do? cobnadeleue?

| Handen nomme køggre pådyre r c yengon<br>E elepnon norme   |
|--|
| 6 depuns nombre  |
| ρε[dou] Θεεσί]  [Ed-6, 9690 3  |
| JSMQ = 27. J SMJ = 27 (650-658) =<br>QELO, Y] 24 (1-658)   |
| Teopere Aparred  |
| 30 th  |
| 20 = 100   |
| $26+h=\cos 0,$ $1-\cos 0,$ $1$ |
| $=\lambda - 2\pi$  |

3) bpoxeserere boxy yr 02 xpulsos x(+), Z(+) Jan (x(t), 256, x(t), 2006, 5(4)) Bot u neporeguzagne. nephre opgræ  $\frac{2}{2+} = (\dot{x} \omega s f, \dot{x} s m f, \dot{z})$  $\frac{\partial}{\partial \rho} = \left(-s_{N} \rho \cdot \chi + \omega_{N} \rho \cdot \chi \cdot \rho\right)$ < = x + 3, (3) かっ 0 < 36126 > = X3 => (x,+ is) 9+5+ x, 96, en spilae Ensa nogotiegniz Daria karyporeno => 9+,+x,9%,

( noxoke see norejrene un ().)

X= R+r ws 4 OVjryznois t = rsmf bjængerne ((Rerusy) wst, (Rerusy) shy, rshy) heplan opegine (ndelfxkorn bjangerine) ((rsing)2+(rcosp)2).292+ (R+rcosy)2242 Pr(Ptrcosp) dedt Loun ? = 4112 rR + 271 r2 ) wsp d = 4772 R [920)