D AVe1 2 MI JUNE 08 4) A = (30+2) × 15 225+7.52 1) 15 momentum before = 0 => (mailse = 3Ns ! momentum after = 3Ns A = 900 m  $0.4v = 3 \Rightarrow V = \frac{3}{0.4} = 7.5 \text{ ms}^{-1}$ 90 1410=900+225+7-52 =) 7.5x = 285 => x = 38x b) 66 gradient = -15 (0.6) (0.4) 15 = -1.875 =) dec= 1.875 ms-2 Total momentum after = 0.4++0.6xs => 3=3+0.4+ Total momentum after = 0.4++0.6xs 0.4v=0=)V=C 5) Sin30 Sin SO  $\Rightarrow R = \frac{7.5}{SinSO}$ P=15 2) - 9\$ / u1=u V2=U2+2as K= 9.79N Aso VA=-17.5 (-17.5)2= u2-19.6x-10 1-1 5=-10 Jim U2=110.25 =) U= 10.5ms-11 a\$=-9.8 6) +1v=17-5 Q=19.3N Sin100 SinSO 3 b) v=u+at -17.5=10.5-9.8t-)t=-28 = 2.860 OF NP=15 3)  $A = \tan^{-1}(\frac{8}{5}) - 53.1^{\circ}$ => RSinSO = 156560 => R=9.79N RF= Ma => F= 0.4(6i+8j) = 2.4i+3.2j 6) RCosso = Q - 1551160 = Q= 19.3N |F| = J2.42+3.22 = 4N c) V= Original vel + t(acc)  $V = (9i - 10j) + 5(6i + 8j) = (39i + 30j) MS^{-1}$ (4 8) U=0 t=3 S=6 3 6)  $S = Ut + \frac{1}{2}at^2 \Rightarrow 6 = 0 + \frac{1}{2}(a)S^2 \Rightarrow a = \frac{4}{3}ms^{-1}$ AD 89×0.8+ 129×1.2 = T8×2.4 NRa=3g NR+=2g fmaxo=3gxm fmaxp=3gxm 20 ⇒30 REA=0 => 2T+10 = 20g 2T = 186whole system Rf=ma T=93N 30 - fmaxa - fmaxp = (3+2)× 43 (T cancels in the u system) AV 0.8x8g+ 12gx.x = 93x2.4 129 30 - 5ym = 20 => Syx = 10 = M = 10 = 10 = 10 = 1 12gxx = 160.48 x = 1.36m C) 7)  $from \in (a) \rightarrow T \qquad T - from p = ma$  $T - 2g \times 12 = 2 \times \frac{4}{3} = 7 T = 12N$ NR = 4g6s30+4ssins0 NR = 68.4N d) Inextensible 3 same acceleration for Pand Q fmax = UNR = 68.4 m. e) U=0 t=3 S=6 Q=4 V=U+at = V=4x3 = 4ms-1 RE 1=0 -> 68.4 + 2g= 45cos50 = 68.4 = 9.325 once force is removed  $\overrightarrow{Rf} = 0$  = frax = 3a =  $\frac{10}{24} \times 3g = 3a$ M= 0.136 30 = = -14 MS-2 1= 4 a=- € v=c V=U+at =) 0=4-15t = t=== 0.86 se