

N= Jspg In [1+ Mpoop].
Mpay + Mrochel

 $\Delta v = 7.6 \text{km/s}, = 7600 \text{ m/s}.$ $ISP = 400 \quad 90 = 9.8 \text{ m/s}^2.$

Inf 1 + M Prode = 7600 = 1.9388.

May + Mrodust 400x3.8

Mprop = (5:350) 5.9504 (Mpoy + Mroches)

Ministral = 5.9504 (Mpay + Morollet + Mprob)

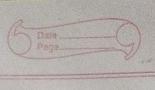
= 5.9504 (Mpay + Morollet + Mprob)

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Mpropellant = 0.85612 Minidial.

Av = 20/ 90 km (Ni). 10 May = 2000 lataly. 11 = 0670 / 11 3 the - Mpropellant + Mpay + Mornal Mpay + Mrochat Mortel = 2000A 6 0x/206 30 = W! 9000+ 90091 e 81/15890 = Mi (1-1) 2000 AV 5 cm/s = av = 8 km/8 = 8000 m/8. Isp= (350, 400, 450) (a) Isp = 350 sec 8000x e 8000/350×5.8 = Mi(1-A) (1) Ito = 400 sec. (c) Top = 450 M(1-1) = 2000 y = 8000/450x 3.8 = 1.2270 x 104. the graph is a hyperbola because as we increase the value of Isp , the stope of the curve I for the same Mi.



	212 so because
2.	(i) Fthrust = - Colon
	-c dm = mg = mdv, dt at
	-c/dm - gfit = Jdv.
ywen	
	m(t) -c(ln m(t) - ln mo) - s(t-0) = v(t)-vo.
and the state of t	
	$V(t) = v_0 - gt - c \ln \left(\frac{m(t)}{m_0} \right).$
	N(+) = Vo - gt - c ln(µ).
	1/4 = 1/2 2 C MI (M)
	The state ding of thirt of the relief
	(iii) total sine of flight of the rocket
	Jet, ve → orbital velocity of rochet. No → intial velocity.
	$v_e = v_o - gt - cln(u)$
	ve - va - c ln(w) - t.
	9
	(iV) n = Formst & occeleration of rocket.
	moj
	So, for not it is much lasier to they become
	So, for my, it is much lasier to fly because through generated will be very high.

of the burnout rate is a constant. - olm = p - John = p de de o mt = ma = pto to to the time to to Spat = - Jam $m_0 - m' - m_0 t = m(t)$. $b_0, \quad \chi(t) = \int v \, dt$ $= + \int \left(-c \ln\left(\frac{m(t)}{m_0}\right) - gt \right) \, dt$ $=-c\int_{0}^{\infty}\ln\left(\frac{m_{0}-(m'-m_{0})t}{t_{0}}\right)-g\int_{0}^{\infty}t\,dt$ Solving mus of we get mo of z as a puebon of you Mon, t=4, gives the burnout altitude