7.1)

>> z = @(t)100+(80/15)\*(55+80\*9.81/15).\*(1-exp(-(15/80).\*t))-(80\*9.81/15).\*t;

>> dz = @(t) 55.\*exp(-(15/80).\*t)-(80\*9.81/15).\*(1-exp(-(15/80).\*t));

>> t = newtraph(dz,3,1e-99,3)

iter root err f(x) err/err\_old

0 3.0000 100.0000 8.8291

1 3.7701 20.4257 0.6078 0.2043

2 3.8313 1.5986 0.0035 0.0783

3 3.8317 0.0092 0.0000 0.0058

t =

3.8317

>> z(t)

ans =

192.8609

Maximum altitude occurs at t=3.8317 with a value of 192.8609

7.2)

a)

b) Eq 7.10: