CE383 STRUCTURAL ANALYSIS
SPRING SEMESTER 2012
ANSWERS TO PROBLEM SET 2

Q.1) $(\Delta_B)_v = 3.785(10^{-3})$ m $= 3.79$ mm $\downarrow$

Q.2) $\Delta_C = 44.64$ mm; $\theta_B = 0.00595$ rad

Q.3) $\Delta_B = 0.04354$ m $= 43.5$ mm $\downarrow$

Q.4) $\Delta_{C,H} = \frac{-157.59}{EI}$

Q.5) R_{AD}=15.11 kN;

Q.6) $F_{AC} = 132.6$ kN

Q.7) $F_{DB} = 19.2$ kN; $F_{CB} = 53.4$ kN

Q.8) **a)** M_A= -12.12 kN .m; V_A=-26.97 kN; M_B=120 kN.m; M_C=0 kN.m
b) Δ_C= 0.208 m

Q.9) $V_A = V_E$=-20 kN; $V_B = V_D$=100 kN; $M_C = M_F$=-80 kN.m; $M_{CF,mid}$=80 kN.m

Q.10) $\theta_{o,r} = \frac{PL^2}{16EI}$; $f_r = \frac{2L}{3EI}$; $R = \frac{-3}{32}PL$