CHAPTER 3

HW#2 SOLN

3.1 (a) Internally stable, with $r = 3$. It is statically determinate

(b) Internally stable, with $r = 5$. It is statically indeterminate. $i_e = 5 - 3 = \underline{2}$

(c) Internally unstable, with $r = 6$ and $e_c = 2$. As $r > 3 + e_c$, the structure is statically indeterminate. $i_e = 6 - (3+2) = \underline{1}$

(d) Internally unstable with $r = 3$ and $e_c = 1$. As $r < 3 + e_c$, the beam is statically unstable.

3.2 (a) Internally stable, with $r = 5$. It is statically indeterminate. $i_e = 5 - 3 = \underline{2}$.

(b) Internally unstable, with $r = 5$ and $e_c = 2$. As $r = 3 + e_c$, the beam is statically determinate.

(c) Internally stable, with $r = 6$. It is statically indeterminate. $i_e = 6 - 3 = \underline{3}$

(d) Internally unstable, with $r = 6$ and $e_c = 1$. As $r > 3 + e_c$, the arch is statically indeterminate. $i_e = 6 - (3+1) = \underline{2}$.

(e) Internally unstable, with $r = 5$ and $e_c = 2$. As $r = 3 + e_c$, the frame is statically determinate.

3.8 (16)

SYMMETRIC STRUCTURE LOADED SYMMETRICALLY

$$A_x = 0$$

$$A_y = B_y = \frac{(2(50^k) + 75^k)}{2} = 87.5^k \uparrow$$