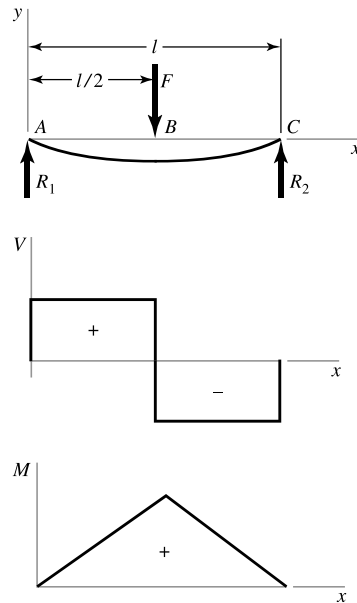


Table A-9**Shear, Moment, and Deflection of Beams**

(Note: Force and moment reactions are positive in the directions shown; equations for shear force V and bending moment M follow the sign conventions given in Sec. 3-2.)

(Continued)

5 Simple supports—center load

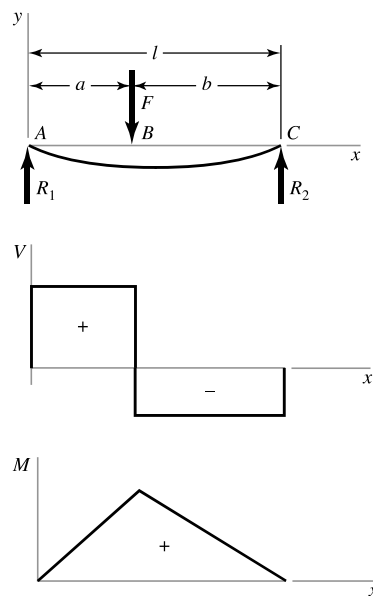
$$R_1 = R_2 = \frac{F}{2}$$

$$V_{AB} = R_1 \quad V_{BC} = -R_2$$

$$M_{AB} = \frac{Fx}{2} \quad M_{BC} = \frac{F}{2}(l - x)$$

$$y_{AB} = \frac{Fx}{48EI}(4x^2 - 3l^2)$$

$$y_{\max} = -\frac{Fl^3}{48EI}$$

6 Simple supports—intermediate load

$$R_1 = \frac{Fb}{l} \quad R_2 = \frac{Fa}{l}$$

$$V_{AB} = R_1 \quad V_{BC} = -R_2$$

$$M_{AB} = \frac{Fbx}{l} \quad M_{BC} = \frac{Fa}{l}(l - x)$$

$$y_{AB} = \frac{Fbx}{6EI l}(x^2 + b^2 - l^2)$$

$$y_{BC} = \frac{Fa(l - x)}{6EI l}(x^2 + a^2 - 2lx)$$

(Continued)