

Errata-*Structural Analysis*, Felix F. Udoeyo

1. Answer to A_x in Problem 3.3 is 14.14 kN

Correction:

$$\rightarrow + \sum F_x = 0$$

$$-16 \cos 75^\circ + A_x = 0$$

$$A_x = 4.14 \text{ kN}$$

$$A_x = 4.14 \text{ kN} \rightarrow$$

2. Answer to A_y in Problem 3.10 is 6.17 kips

Correction:

$$\uparrow + \sum F_y = 0$$

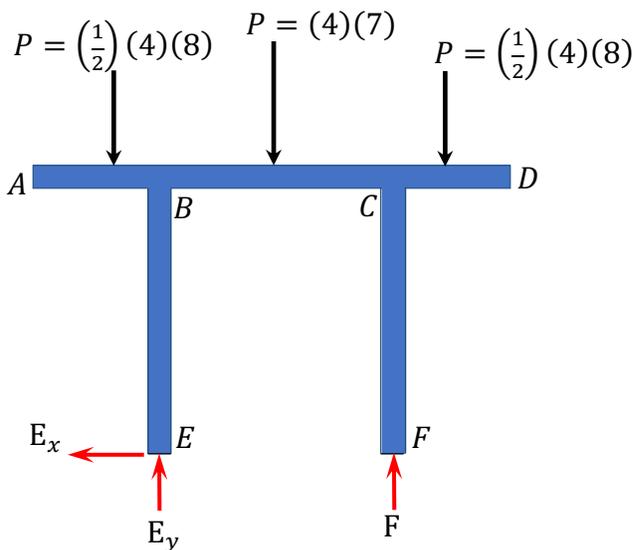
$$A_y + 15.17 - (0.5)(3)(6) = 0$$

$$A_y = -6.17 \text{ kips}$$

$$A_y = 6.17 \text{ kips} \downarrow$$

3. Answer to F_y and E_y in Problem 3.12 are each 30 kN

Corrections:



(c)

$$+\circlearrowleft \sum M_E = 0$$

$$\left(\frac{1}{2} \times 4 \times 8\right)\left(\frac{1}{3} \times 4\right) - (4 \times 7)\left(\frac{7}{2}\right) - \left(\frac{1}{2} \times 4 \times 8\right)\left(7 + \frac{1}{3} \times 4\right) + 7F_y = 0$$

$$F_y = 30 \text{ kN}$$

$$F_y = 30 \text{ kN } \uparrow$$

$$+\uparrow \sum F_y = 0$$

$$E_y + 30 - 2\left(\frac{1}{2} \times 4 \times 8\right) - 4(7) = 0$$

$$E_y = 30 \text{ kN}$$

$$E_y = 30 \text{ kN } \uparrow$$

4. Change the roller support at B to a pinned support to provide stability for member BD, and repeat the analysis.

Corrections:

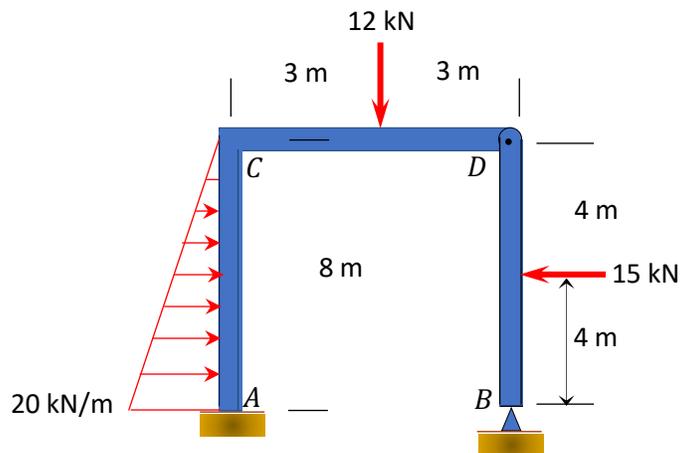
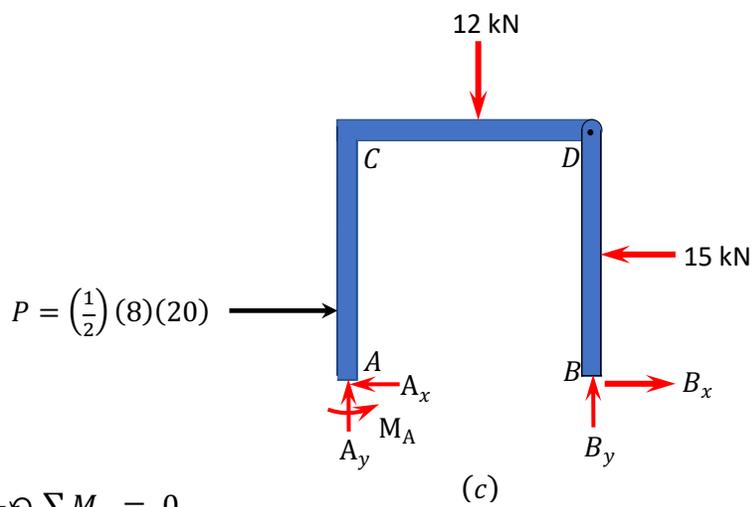
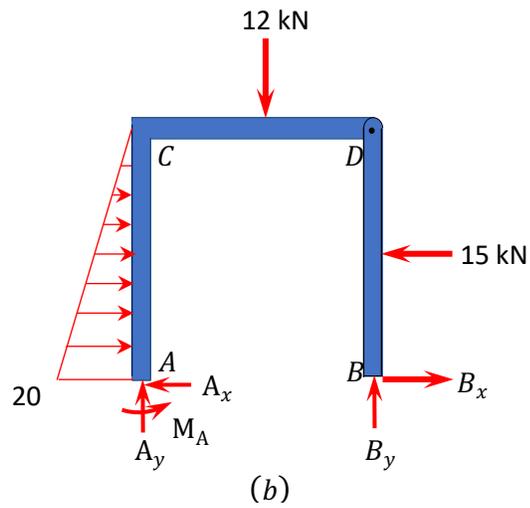


Fig. 3.21

(a)



$$+\circlearrowleft \sum M_D = 0$$

$$-15(4) + B_x(8) = 0$$

$$B_x = 7.5 \text{ kN}$$

$$B_x = 7.5 \text{ kN} \rightarrow$$

$$+\rightarrow \sum F_x = 0$$

$$-A_x - 15 + 7.5 + \left(\frac{1}{2} \times 8 \times 20\right) = 0$$

$$A_x = 72.5 \text{ kN}$$

$$A_x = 72.5 \text{ kN} \leftarrow$$

$$+\circlearrowleft \sum M_A = 0$$

$$M_A + 6 \times 0 - \left(\frac{1}{2} \times 8 \times 20\right) \left(\frac{1}{3} \times 8\right) - 12(3) + 15(4) = 0$$

$$M_A = 189.33 \text{ kN.m}$$

$$M_A = 189.33 \text{ kN.m} \curvearrowright$$

$$+\uparrow \sum F_y = 0$$

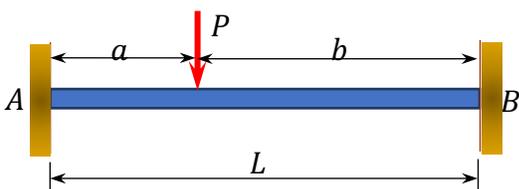
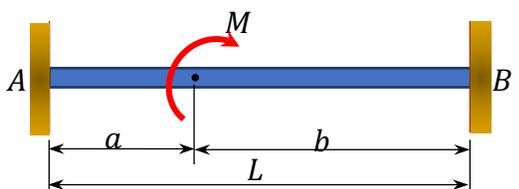
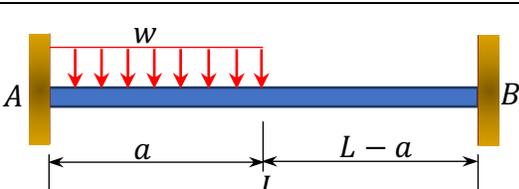
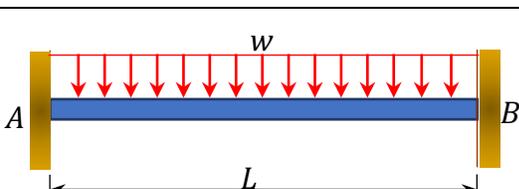
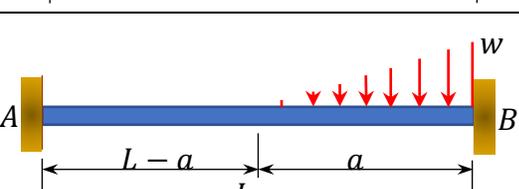
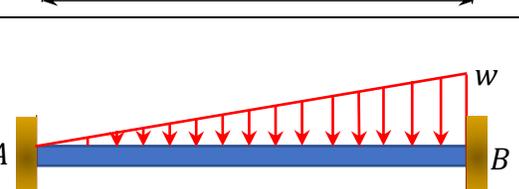
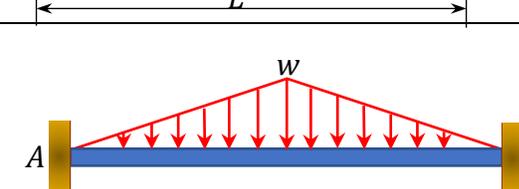
$$A_y + 0 - 12 = 0$$

$$A_y = 12 \text{ kN}$$

$$A_y = 12 \uparrow$$

5. The missing diagrammatic sketch of the type of loading in row 6 of Table 11.1 is replaced.

Table 11.1. Fixed-end moments.

Type of loading	$(FEM)_{AB}$	$(FEM)_{BA}$
	$\frac{Pab^2}{L^2}$	$\frac{Pa^2b}{L^2}$
	$b(2a - b)\frac{M}{L^2}$	$a(2b - a)\frac{M}{L^2}$
	$\frac{wL^2}{12} \left(6 - 8\frac{a}{L} + 3\frac{a^2}{L^2} \right)$	$\frac{wL^2}{12} \left(4 - 3\frac{a}{L} \right)$
	$\frac{wL^2}{12}$	$\frac{wL^2}{12}$
	$\frac{wa^3}{60L} \left(5 - 3\frac{a}{L} \right)$	$\frac{wa^2}{60} \left(16 - 10\frac{a}{L} + 3\frac{a^2}{L^2} \right)$
	$\frac{wL^2}{30}$	$\frac{wL^2}{20}$
	$\frac{5wL^2}{96}$	$\frac{5wL^2}{96}$

6. The computed distribution factors for members BA and BC are correctly placed in Table 12.1.

Correction:

Table 12.1 Distribution Table

Joint	A	B		C
Member	AB	BA	BC	CB
DF	0	0.67	0.33	0
FEM	-12	+12	-48	+48
Bal		+24.12	+11.88	
CO	+12.06			+5.94
Total	+0.06	+36.12	-36.12	+53.94