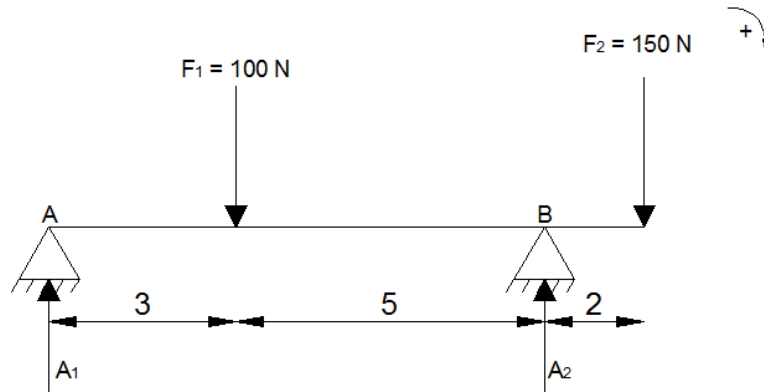


ΑΣΚΗΣΗ 1:

Να υπολογιστούν

οι A_1 και A_2 .



ΛΥΣΗ:

$$\sum F = 0 \Rightarrow A_1 - F_1 + A_2 - F_2 = 0 \Rightarrow A_1 + A_2 = F_1 + F_2 \Rightarrow A_1 + A_2 = 100 + 150 \Rightarrow A_1 + A_2 = 250 N$$

$$\sum M_A = 0 \Rightarrow \cancel{A_1 * 0} + F_1 * 3 - A_2 * (5 + 3) + F_2 * (2 + 5 + 3) = 0 \Rightarrow -A_2 * 8 = -F_1 * 3 - F_2 * 10 \Rightarrow$$

$$\Rightarrow -A_2 = \frac{-F_1 * 3 - F_2 * 10}{8} \Rightarrow -A_2 = \frac{-100 * 3 - 150 * 10}{8} \Rightarrow -A_2 = \frac{-300 - 1500}{8} \Rightarrow -A_2 = \frac{-1800}{8} \Rightarrow$$

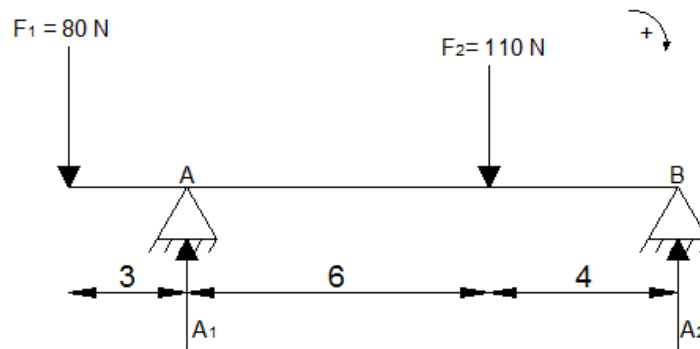
$$\Rightarrow -A_2 = -225 \Rightarrow A_2 = 225 N$$

$$A_1 + A_2 = 250 \Rightarrow A_1 = 250 - A_2 \Rightarrow A_1 = 250 - 225 \Rightarrow A_1 = 25 N$$

ΑΣΚΗΣΗ 2:

Να υπολογιστούν

οι A_1 και A_2 .



ΛΥΣΗ:

$$\sum F = 0 \Rightarrow -F_1 + A_1 - F_2 + A_2 = 0 \Rightarrow A_1 + A_2 = F_1 + F_2 \Rightarrow A_1 + A_2 = 80 + 110 \Rightarrow A_1 + A_2 = 190 N$$

$$\sum M_A = 0 \Rightarrow -F_1 * 3 + \cancel{A_1 * 0} + F_2 * 6 - A_2 * (4 + 6) = 0 \Rightarrow -A_2 * 10 = F_1 * 3 - F_2 * 6 \Rightarrow$$

$$\Rightarrow -A_2 = \frac{F_1 * 3 - F_2 * 6}{10} \Rightarrow -A_2 = \frac{80 * 3 - 110 * 6}{10} \Rightarrow -A_2 = \frac{240 - 660}{10} \Rightarrow -A_2 = \frac{-420}{10} \Rightarrow$$

$$\Rightarrow -A_2 = -42 \Rightarrow A_2 = 42 N$$

$$A_1 + A_2 = 190 \Rightarrow A_1 = 190 - A_2 \Rightarrow A_1 = 190 - 42 \Rightarrow A_1 = 148 N$$

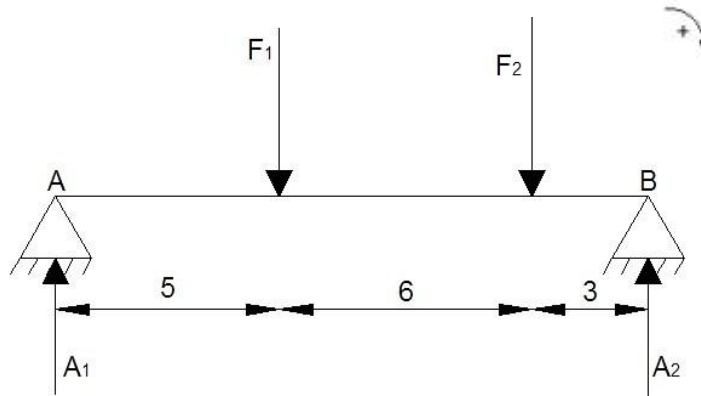
ΑΣΚΗΣΗ 3:

$$F_1 = 50 \text{ N}$$

$$F_2 = 80 \text{ N}$$

Να υπολογιστούν

οι A_1 και A_2 .



ΛΥΣΗ:

$$\sum F = 0 \Rightarrow A_1 - F_1 - F_2 + A_2 = 0 \Rightarrow A_1 + A_2 = F_1 + F_2 \Rightarrow A_1 + A_2 = 50 + 80 \Rightarrow A_1 + A_2 = 130 \text{ N}$$

$$\sum M_A = 0 \Rightarrow \cancel{A_1 * 0} + F_1 * 5 + F_2 * (6 + 5) - A_2 * (3 + 6 + 5) = 0 \Rightarrow -A_2 * 14 = -F_1 * 5 - F_2 * 11 \Rightarrow$$

$$\Rightarrow -A_2 = \frac{-F_1 * 5 - F_2 * 11}{14} \Rightarrow -A_2 = \frac{-50 * 5 - 80 * 11}{14} \Rightarrow -A_2 = \frac{-250 - 880}{14} \Rightarrow -A_2 = \frac{-1130}{14} \Rightarrow$$

$$\Rightarrow -A_2 = -80,71 \Rightarrow A_2 = 80,71 \text{ N}$$

$$A_1 + A_2 = 130 \Rightarrow A_1 = 130 - A_2 \Rightarrow A_1 = 130 - 80,71 \Rightarrow A_1 = 49,29 \text{ N}$$

ΑΣΚΗΣΗ 4:

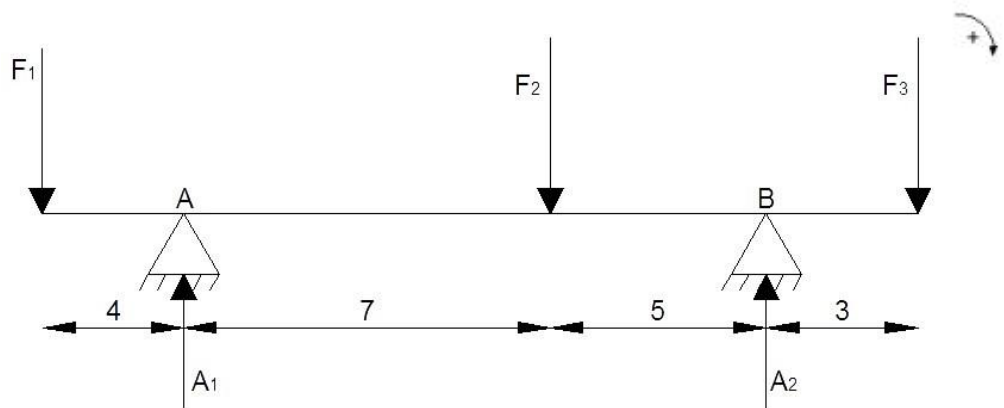
$$F_1 = 60 \text{ N}$$

$$F_2 = 90 \text{ N}$$

$$F_3 = 110 \text{ N}$$

Να υπολογιστούν

οι A_1 και A_2 .



ΛΥΣΗ:

$$\sum F = 0 \Rightarrow -F_1 + A_1 - F_2 + A_2 - F_3 = 0 \Rightarrow A_1 + A_2 = F_1 + F_2 + F_3 \Rightarrow A_1 + A_2 = 60 + 90 + 110 \Rightarrow$$
$$\Rightarrow A_1 + A_2 = 260 \text{ N}$$

$$\sum M_B = 0 \Rightarrow F_3 * 3 + \cancel{A_2 * 0} - F_2 * 5 + A_1 * (7 + 5) - F_1 * (4 + 7 + 5) = 0 \Rightarrow A_1 * 12 = -F_3 * 3 + F_2 * 5 + F_1 * 16 \Rightarrow$$

$$\Rightarrow A_1 = \frac{F_1 * 16 - F_2 * 5 - F_3 * 3}{12} \Rightarrow A_1 = \frac{60 * 16 - 90 * 5 - 110 * 3}{12} \Rightarrow A_1 = \frac{960 - 450 - 330}{12} \Rightarrow A_1 = \frac{960 - 780}{12} \Rightarrow$$

$$\Rightarrow A_1 = \frac{180}{12} \Rightarrow A_1 = 15 \text{ N}$$

$$A_1 + A_2 = 260 \Rightarrow A_2 = 260 - A_1 \Rightarrow A_2 = 260 - 15 \Rightarrow A_2 = 245 \text{ N}$$