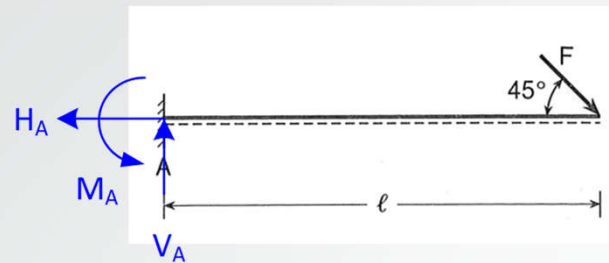




Ασκήσεις προς επίλυση

Υπολογισμός αντιδράσεων

Λύσεις



$$H_A = F \cos(45^\circ)$$

$$V_A = F \sin(45^\circ)$$

$$M_A = Fl \sin(45^\circ)$$

$$F_x = F \cos(45^\circ), F_y = F \sin(45^\circ)$$

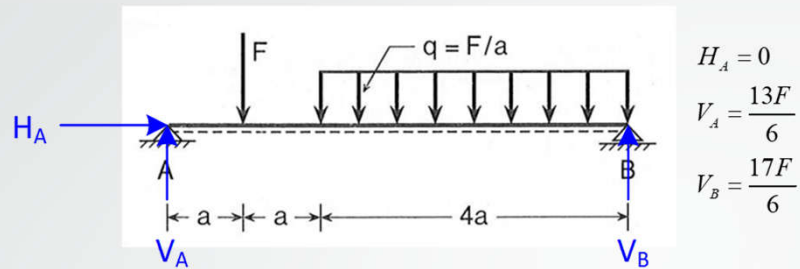
$$\sum F_x = 0 \Rightarrow (+ \text{----} \rightarrow) -H_A + F_x = 0 \Rightarrow H_A = F \cos(45^\circ)$$

$$\sum F_y = 0 \Rightarrow (+ \text{^^}) +V_A - F_y = 0 \Rightarrow V_A = F \sin(45^\circ)$$

$$\sum M(A) = 0 \text{ (Αλγεβρικό άθροισμα των ροπών ΓΥΡΩ από το σημείο A ίσο με το μηδέν)} \Rightarrow \text{(θετική φορά } \Sigma \Delta \Omega \text{ - CW)}$$

$$-M_A + F_y \cdot l = 0 \Rightarrow M_A = Fl \sin(45^\circ).$$

Λύσεις



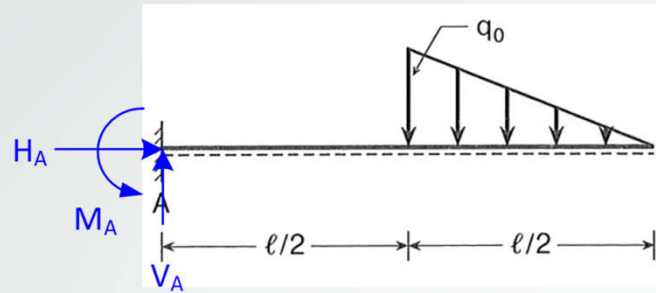
$$\Sigma F_x = 0 \Rightarrow H_A = 0.$$

$$\Sigma M(A) = 0 \Rightarrow (+ \Sigma \Delta \Omega) + F \cdot a + P \cdot 4a - V_B \cdot 6a = 0 \Rightarrow V_B = 17F/6.$$

$$\Sigma M(B) = 0 \Rightarrow (+ \Sigma \Delta \Omega) + V_A \cdot 6a - F \cdot 5a - P \cdot 2a = 0 \Rightarrow V_A = 13F/6$$

Εναλλακτικά, αντί για $\Sigma M(B) = 0$, μπορούμε να πάρουμε $\Sigma F_y = 0$.

Λύσεις



$$H_A = 0$$

$$V_A = \frac{q_0 l}{4}$$

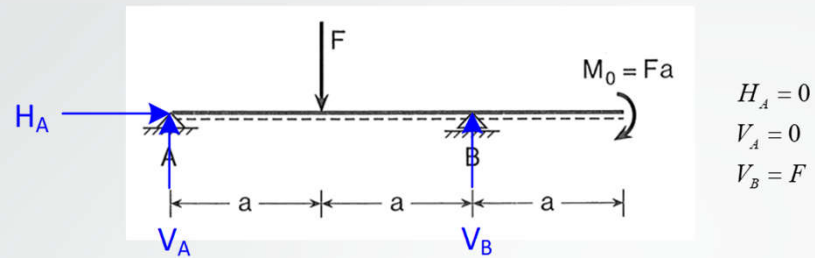
$$M_A = \frac{q_0 l^2}{6}$$

$$\Sigma F_x = 0 \Rightarrow H_A = 0$$

$$\Sigma F_y = 0 \Rightarrow V_A = q_0 \cdot l / 4$$

$$\Sigma M(B) = 0 \Rightarrow (+ \Sigma \Delta Q) + P \cdot l / 6 + V_A \cdot l / 2 - M_A = 0 \Rightarrow M_A = q_0 \cdot l^2 / 6$$

Λύσεις



$$H_A = 0$$

$$V_A = 0$$

$$V_B = F$$

$$\Sigma F_x = 0 \Rightarrow H_A = 0.$$

$$\Sigma F_y = 0 \Rightarrow (+ \uparrow) + V_A + V_B - F = 0.$$

$$\Sigma M(B) = 0 \Rightarrow (+ \curvearrowright) + V_A \cdot 2a - F \cdot a + M_0 = 0 \Rightarrow V_A = 0.$$

Αντικαθιστώντας παραπάνω $V_B = F$.

Λύσεις

$$P = q_0 \cdot 3a/2$$

$$\Sigma F_y = 0 \Rightarrow V_A = 0.$$

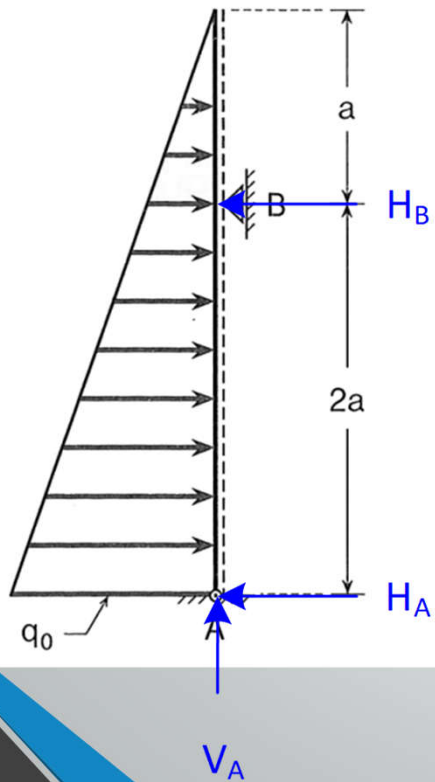
$$\Sigma M(A) = 0 \Rightarrow (+ \Sigma \Delta \Omega) + P \cdot a - H_B \cdot 2a = 0 \Rightarrow H_B = 3q_0 a/4.$$

$$\Sigma F_x = 0 \Rightarrow (+ \text{--->}) - H_B - H_A + P = 0 \Rightarrow H_A = 3q_0 a/4.$$

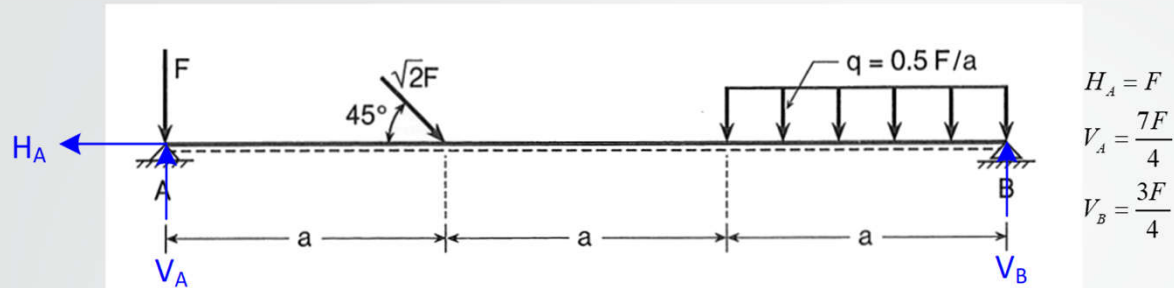
$$H_A = \frac{3q_0 a}{4}$$

$$V_A = 0$$

$$H_B = \frac{3q_0 a}{4}$$



Λύσεις



$$\begin{aligned}\Sigma F_x = 0 &\Rightarrow (+ \rightarrow) -H_A + F_x = 0 \Rightarrow H_A = F. \\ (+ \leftarrow) +H_A - F_x &= 0 \Rightarrow H_A = F.\end{aligned}$$

$$\Sigma M(A) = 0 \Rightarrow (+\Sigma \Delta \Omega) + Fy \cdot a + P \cdot 2.5a - V_B \cdot 3a = 0 \Rightarrow V_B = \frac{3F}{4}.$$

$$\Sigma F_y = 0 \Rightarrow (+ \uparrow) +V_A - F - F_y - P + V_B = 0 \Rightarrow V_A = \frac{7F}{4}.$$