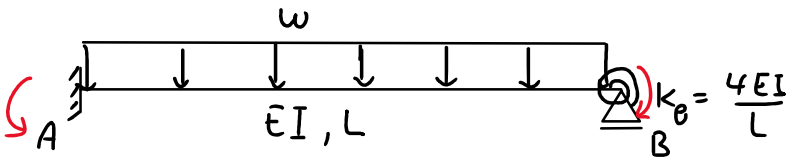
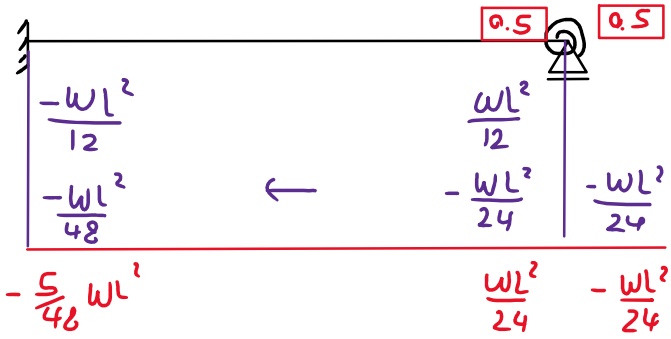
مثال: لنگرهای دو سر تیر را به دست آورید.

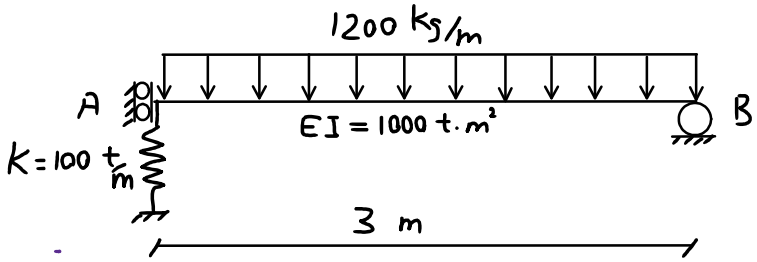


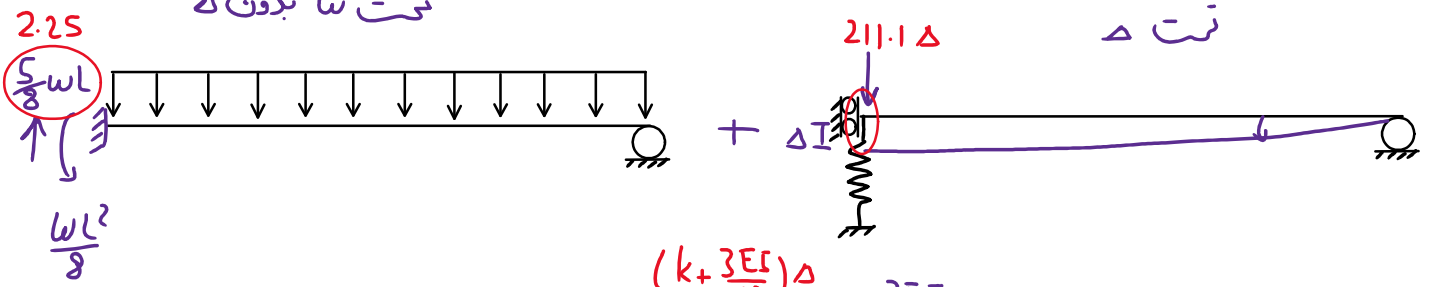
Δ ندارد
1 θ



مثال : نیروی فنر را به دست آورید.

1 Δ
θ نداریم ← اصلاح شد





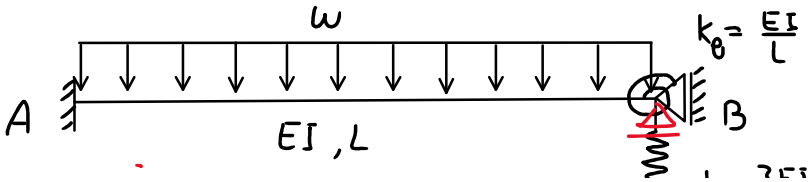
Δ بدون w تیر
Δ تیر

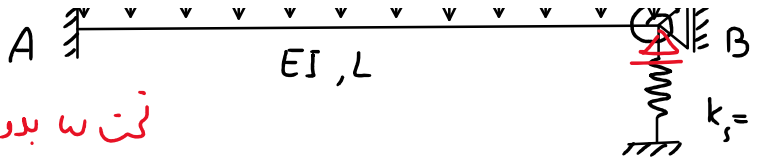
$211.1\Delta = 2.25 \rightarrow \Delta = 0.0107\ m$

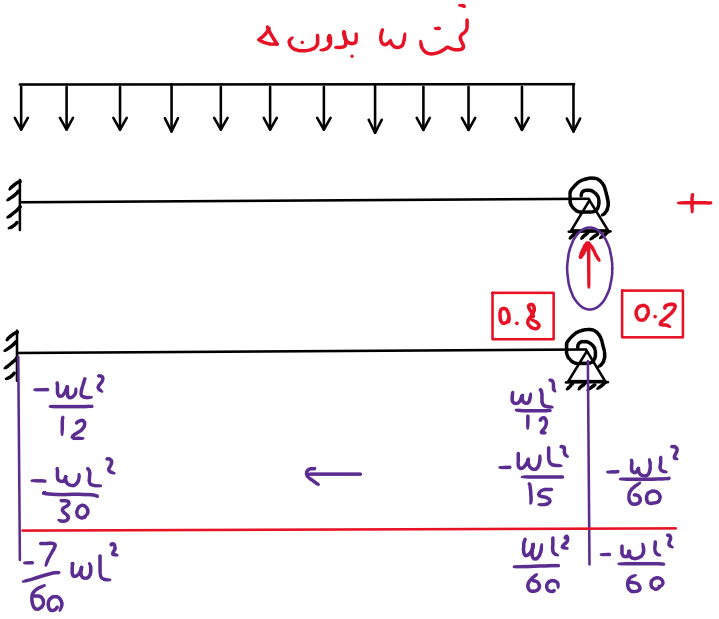
$F = k\Delta = 1.07\ ton$

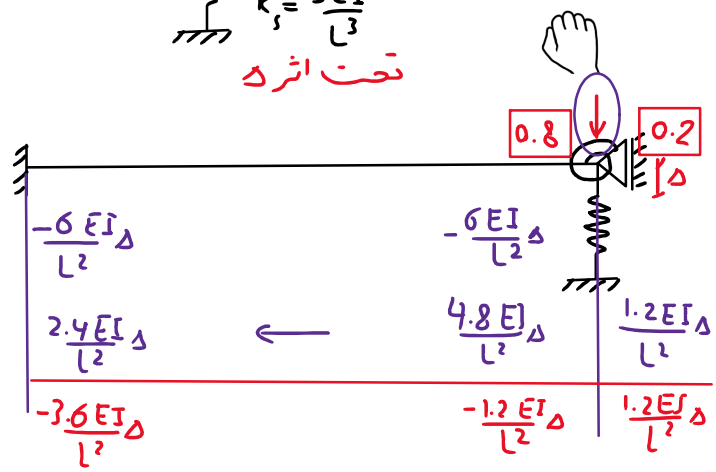
مثال : نیروهای فنرها را به دست آورید.

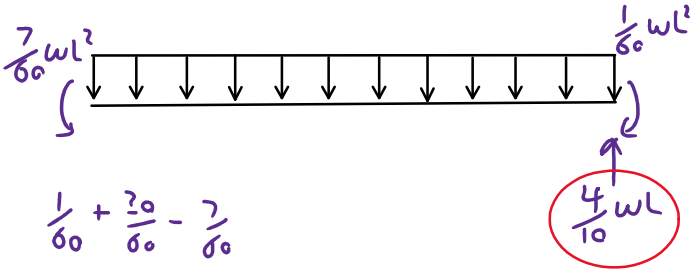
1 Δ
1 θ

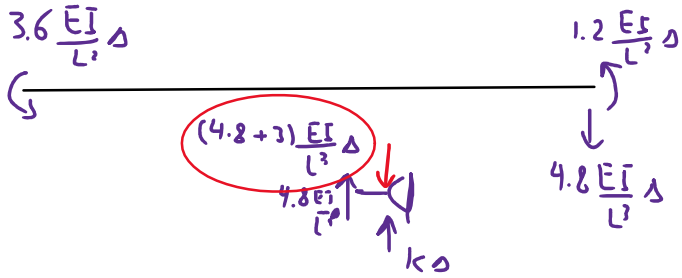










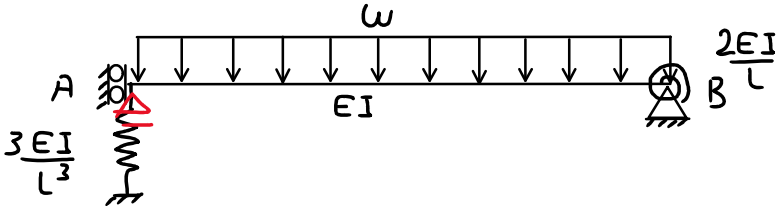


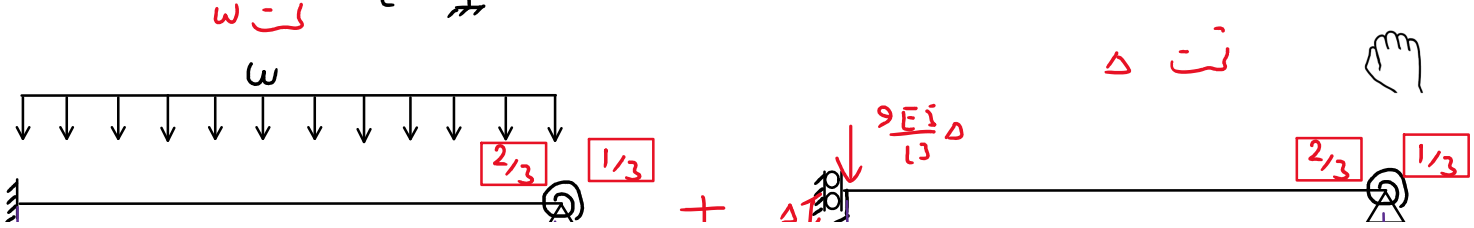
$$\frac{4}{10}wL = 7.8\,\frac{EI}{L^2}\Delta \rightarrow \boxed{EI\Delta = \frac{2}{39}wL^4}$$

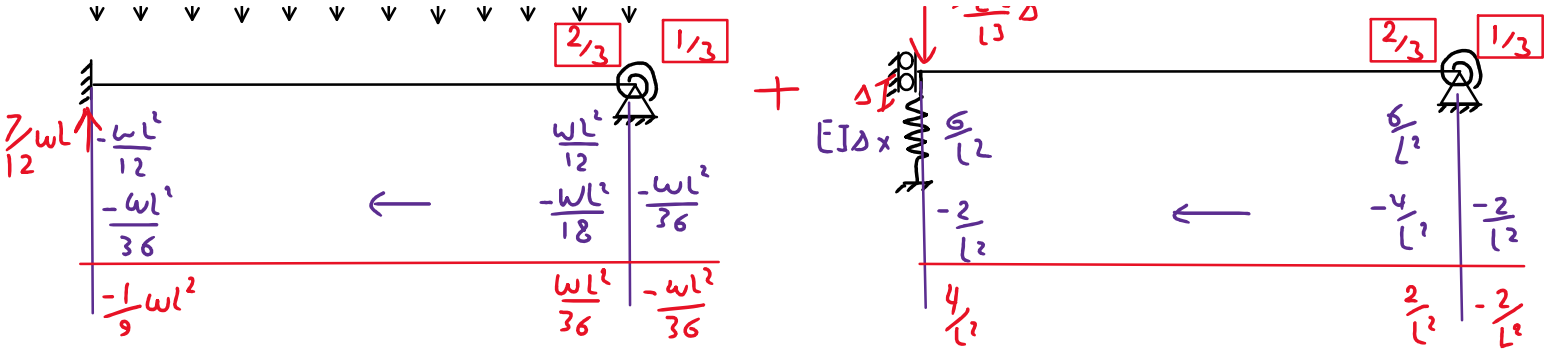
$$F_s = k\Delta = \frac{3EI}{L^3}\Delta = \frac{3}{L^3}\cdot\frac{2}{39}wL^4 = \boxed{\frac{2}{13}wL}$$

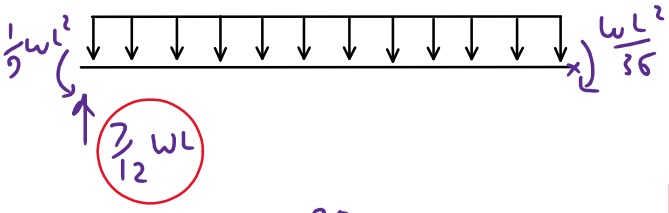
$$M_s = \frac{-wL^2}{60} + \frac{1.2EI}{L^2}\Delta = \left(-\frac{1}{60} + \frac{4}{10}\times\frac{2}{13}\right)wL^2 = \frac{-13+46}{5\times12\times13}wL^2 = \boxed{\frac{7}{156}wL^2}$$

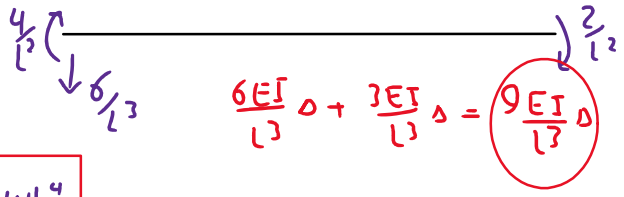
مثال : نیروهای منزها را به دست آورید.











$$\frac{9EI}{L^3}\Delta = \frac{7}{12}wL \rightarrow \boxed{EI\Delta = \frac{7}{108}wL^4}$$

$$F_s = k\Delta = \frac{3EI}{L^3}\Delta = \frac{7}{36}wL$$