

$$L_{ve} = 1 \cdot \frac{\pi \pi l}{EA} = L_{v1}$$

2

$$L_{v1} = 2 \left( \frac{1}{EI} \int_0^{2l} \left( 2qlz - \frac{qz^2}{2} - \frac{\pi\sqrt{3}}{6} z \right) \left( -\frac{\sqrt{3}}{6} z \right) dz \right) +$$

$$+ 4 \left( \frac{\frac{2l\sqrt{3}}{3} \cdot \frac{\pi\sqrt{3}}{3} \cdot \frac{\sqrt{3}}{3}}{EA} \right) = \frac{2\pi l}{EA}$$

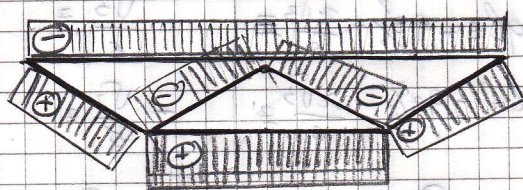
$$\frac{2}{EI} \int_0^{2l} \left( -\frac{\sqrt{3}}{3} qlz^2 + \frac{\sqrt{3}}{12} qz^3 + \frac{1}{12} \pi z^2 \right) dz + \frac{4\pi l \sqrt{3}}{9EA} - \frac{2\pi l}{EA} = 0$$

$$\frac{2}{EI} \left[ -\frac{\sqrt{3}}{9} qlz^3 + \frac{\sqrt{3}}{48} qz^4 + \frac{\pi z^3}{36} \right]_0^{2l} + \frac{4\pi l \sqrt{3}}{9EA} - \frac{2\pi l}{EA} = 0$$

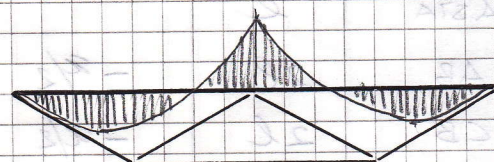
$$-\frac{8\sqrt{3}ql}{9I} + \frac{\sqrt{3}}{3I} ql^3 + \frac{2\pi l^3}{9I} + \frac{4\pi l \sqrt{3}}{9A} - \frac{\pi l}{A} = 0$$

$$\pi \left( \frac{2l^2}{9I} + \frac{4\sqrt{3}}{9A} - \frac{1}{A} \right) = \frac{8\sqrt{3}}{9I} ql^3 - \frac{\sqrt{3}}{3I} ql^3$$

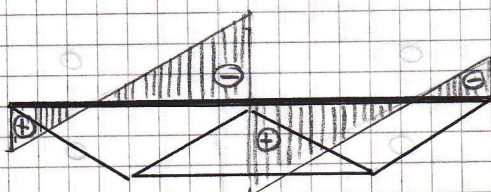
$$\pi = \frac{\frac{5\sqrt{3}}{9I} ql^3}{\frac{2l^2}{9I} + \frac{4\sqrt{3}-9}{9A}}$$



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