Дано:

$h = 3$ м

$m = 50$ кг

$M - ?$

$V - ?$

Реш

$$\frac{mgh}{2} = \frac{I w^2}{2}$$

$$I = \frac{m h^2}{3}$$

$$M = I w$$

$$\frac{m h^2 w^2}{3} = mgh$$

$$\frac{h w^2}{3} = g$$

$$w = \sqrt{\frac{3g}{h}}$$

$$M = \frac{m h^2}{3} \cdot \sqrt{\frac{3g}{h}} = 50 \cdot 3 \cdot \sqrt{9{,}8} \approx$$

$$\approx 4{,}7 \cdot 10^2 \ \text{кг} \cdot \frac{\text{м}^2}{\text{с}}$$

$$V = w h = \sqrt{\frac{3g}{h}} \cdot h = \sqrt{3gh} \approx 9{,}4 \text{ м/с}$$

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