

Hw18a

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12:35 PM

$$1. \quad v_2 = \sqrt{\frac{k d^2}{m+M}}$$

$$v_i = \frac{m+M}{m} \sqrt{\frac{k d^2}{m+M}}$$

$$2. \quad D = \frac{\left(\frac{m}{m+M} v \cos \theta \right)^2}{2 \mu g}$$

$$3. \quad \theta = \arccos\left(\frac{\sqrt{3}}{2}\right) = 30^\circ$$

$$4. \quad \Delta E = \frac{31}{16} m v^2$$