

17

$$\begin{array}{|l} \uparrow \\ \hline \end{array}$$

$$m g L = \frac{1}{2} m v^2$$

$$v^2 = 2 g L$$

$$v = \sqrt{2 g L}$$

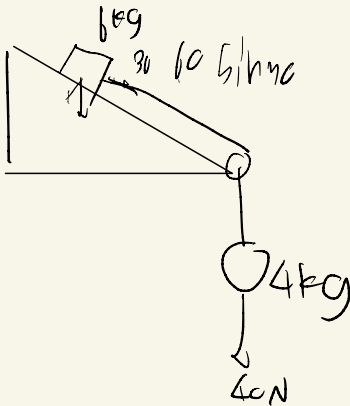
$$\frac{3}{2} \times \frac{1}{2} \times m \times 2 g L = \frac{1}{2} m a^2$$

$$\Rightarrow$$

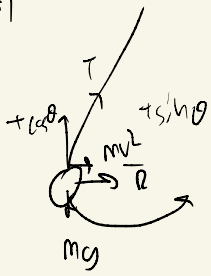
$$a^2 = \frac{3}{2} g L$$

$$a = \sqrt{\frac{3}{2} g L}$$

27



51



$$T \cos \theta = mg$$

$$T = \frac{mg}{\cos \theta}$$

$$T \sin \theta = m \vec{a}_c$$

$$T = \frac{mv^2}{R \sin \theta}$$

$$T = \frac{m \vec{a}_c}{\sin \theta}$$

$$T \sin \theta =$$

$$\Rightarrow \frac{\frac{1}{2} m v_1^2}{\frac{1}{2} m v_2^2} = \frac{m}{2m} \quad \frac{1}{2} v_1^2 \rightarrow \frac{1}{2} v_2^2 \rightarrow$$

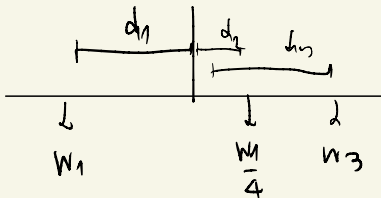
$$8) F \cos \theta = \mu(mg - F \sin \theta)$$

$$F \cos \theta + \mu F \sin \theta = \mu mg$$

$$F (\cos \theta + \mu \sin \theta) = \mu mg$$

$$F = \frac{\mu mg}{\cos \theta + \mu \sin \theta}$$

9)



$$W_1 d_1 = \frac{W_2}{4} d_2 + W_3 d_3$$

$$W_1 d_1 = \frac{W_2}{4} \frac{d_1}{2} + W_3 \frac{2}{3} d_1$$

$$W_1 d_1 - \frac{W_2 d_1}{8} \rightarrow \frac{7 W_2 d_1}{8} = W_3 \frac{2}{3} d_1$$

$$\frac{7 W_2 W_3}{2 \cdot 8}$$

12)

$$\begin{array}{l} \leftarrow \\ \boxed{315} \quad \Sigma F = ma \\ F - R = 7 \times 3 \\ F - R_1 = a \end{array}$$

$$\begin{array}{l} \Sigma F = ma \\ R_1 - R_2 = 2 \times 2 \\ R_1 - R_2 = 4 \\ \leftarrow \quad R_2 = 1 \\ R_1 = 5 \end{array}$$

15)

$$\frac{1}{f} = \frac{1}{15} + \frac{1}{5'}$$

$$\frac{1}{20} = \frac{1 \times 4}{15 \times 4} \quad 60$$

$$= \frac{1}{15}$$

$$4) \frac{1}{2} = \frac{1}{1} + \frac{1}{5'}$$

~~$$\frac{1}{2} = \frac{1}{1} + \frac{1}{5'}$$~~

~~$$\frac{1}{2} = \frac{1}{1} + \frac{1}{5'}$$~~

17)

$$V = 2R$$

V

$$V = 3 \times R$$

217

$$\frac{120}{1.5} \times 2 = \frac{240}{1.5} = 160$$

231

$$\frac{1}{\frac{1}{2} + \frac{1}{2}} = \frac{1}{C_{12}}$$

$$\frac{1}{2} = \frac{1}{C_{12}}$$

$$C_{12} = 2 \mu F$$

$$V = IR$$

$$5 = I$$

$$2 \mu F \quad V \rightarrow IS$$

$$5 = 2I$$

$$I = 1A$$

$$C = 2 \mu V$$

251 $P = VI$

$$P =$$

2)

2)

$$\left(\frac{D}{d}\right)^2 = \frac{W}{F}$$

$$\left(\frac{4}{1}\right)^2 = \frac{1200}{F}$$

$$F = \frac{1200}{16}$$

$$5) \frac{\sqrt{2}}{2} \times 10 \rightarrow 5\sqrt{2} V_x$$

~~4~~

$$S = vt$$

$$5 = 5\sqrt{2} t + \frac{\sqrt{2}}{2}$$

$$t = \frac{\sqrt{2}}{2} \quad \left\{ \begin{array}{l} u = 5\sqrt{2} \quad a_2 = 10 \\ t = \frac{\sqrt{2}}{2} \\ S = ? \end{array} \right.$$

$$S = 5 + \frac{1}{2} \times 10 \times \frac{1}{2}$$

$$S = 2.5$$

$$U_y = 20 \quad t = 0.4$$

$$V = 0 \quad t = 100 \text{ g} \times 2 \text{ g}$$

$$U_y = ? \quad a = 10$$



cm

8)

$$f = \frac{v}{\lambda} = \frac{340}{\frac{1}{1.4}}$$

9) $371 + 0.6t$

$$371 + 0.6 \times 27 = 447.2$$

$$v = \lambda \lambda$$

$$\lambda = \frac{447.2}{600} = 0.745$$

$$1) \frac{3}{10^{-4}}$$

$$2) \times 10^4$$

$$14) |s_1 p - s_2 p| \rightarrow n_0 = 112 \quad v = 50 \quad f = 1$$

$$\lambda = 5$$

$$50 = f \lambda$$

$$f = 10$$

95

$$v = f \lambda$$

v

$$1.52 = 0.6$$

$$v = 250 \times 0.4$$

$$\lambda = 0.6$$

$$\frac{1}{1.5}$$

$$\lambda = 0.4$$

$$24) E = \frac{hc}{\lambda} = \frac{4.1 \times 10^{-15} \times 3 \times 10^8}{900 \times 10^{-9}} = 1.4$$