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1. \_\_\_\_\_:

$$mg \cos \alpha \sin \alpha.$$

\_\_\_\_\_:

$$g \sin \alpha.$$

$$mg \cos \alpha \sin \alpha.$$

2. \_\_\_\_\_:

$$(6gL)^{1/2}.$$

\_\_\_\_\_:

$$m$$

$$V_0 -$$

$$\Delta t \quad F,$$

$$mV = F\Delta t$$

$$2mV - mV_0 = -F\Delta t.$$

$$V = V_0/3.$$

$$V = (2gL/3)^{1/2},$$

$$mV^2/2 + 2mV^2/2 = mgL,$$

$$V_0 = 3V = (6gL)^{1/2}.$$

3. \_\_\_\_\_:

$$3q/(16\pi\epsilon_0 R), \quad \epsilon_0 -$$

\_\_\_\_\_:

$$q$$

$$q/(4\pi\epsilon_0 R),$$

$q/(8\pi\epsilon_0 R),$   
 $2q:$   
 $\varphi_q = q/(4\pi\epsilon_0 R) + q/(8\pi\epsilon_0 R) = 3q/(8\pi\epsilon_0 R).$   
 $q/(2\pi\epsilon_0 R),$   
 $q:$   
 $\varphi_{2q} = q/(2\pi\epsilon_0 R) + q/(16\pi\epsilon_0 R) = 9q/(16\pi\epsilon_0 R).$

$$\varphi_{2q} - \varphi_q = 3q/(16\pi\epsilon_0 R).$$

4. \_\_\_\_\_:  $2\pi[2mL/(3F)]^{1/2}.$

\_\_\_\_\_:

$L/3$   $2L/3$   
 ( \_\_\_\_\_ )  
 \_\_\_\_\_

$$ma_x = -Fx/(2L/3).$$

$$(x \ll L)$$

$$x/(2L/3).$$

$$\omega^2 = 3F/(2mL).$$

$$x\ddot{1} + \omega^2 x = 0$$

$$T = 2\pi[2mL/(3F)]^{1/2}.$$

$$T = 2\pi/\omega,$$

$2L/3$   
 $F/m.$   
 $T = 2\pi(L/g)^{1/2}$   $g$   $F/m$   $L$   
 $2L/3,$