

Monday, December 16/13
Physics 122/121

Return Quizzes/Labs

1. [Test Unit 2 - Tuesday](#)
2. Check -> Textbook: Page 646, #11-14
Textbook: Page 655, #20-24

Textbook: Page 678, 42-45, 47, 50
3. Electric Current
4. Textbook: Page 696, #4-10
#4. 4.00 V (text: 40.0 V)
#8. 75 s (text: 57 s)
5. Conventional Current vs Electron Flow
6. Circuit Symbols
7. Open and Closed Circuits
8. Ammeters and Voltmeters
9. Resistance

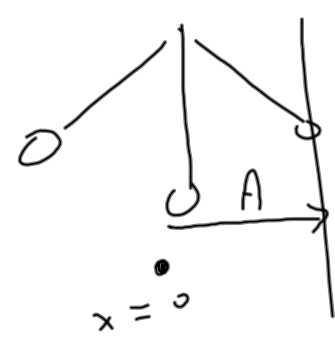
QUIZ - U2 - Section 2

B. 1. $T = 2\pi \sqrt{\frac{l}{g}}$ ✗

A. 2. $T_n = 2\pi \sqrt{\frac{2l}{g}}$ $(\sqrt{2}) = 1.4$

C. 3. $-v \rightarrow 0$
 $\left| \begin{matrix} \leftarrow -v \text{ (initial)} \\ \rightarrow 0 \end{matrix} \right|$

D. 4. $T = 2\pi \sqrt{\frac{l}{g}}$ $\left[\begin{matrix} T = 2\pi \sqrt{\frac{m}{k}} \\ \downarrow \text{no change} \end{matrix} \right]$

A. 5.  $\left[\begin{matrix} a \propto x \\ a \text{ directed} \\ \text{the eq. position} \end{matrix} \right]$

Part 2 - Short Answer

1. $T = 2\pi \sqrt{\frac{m}{k}}$ $m, k.$

2. a) constant. \vec{v}_x

b) $y = 0m.$

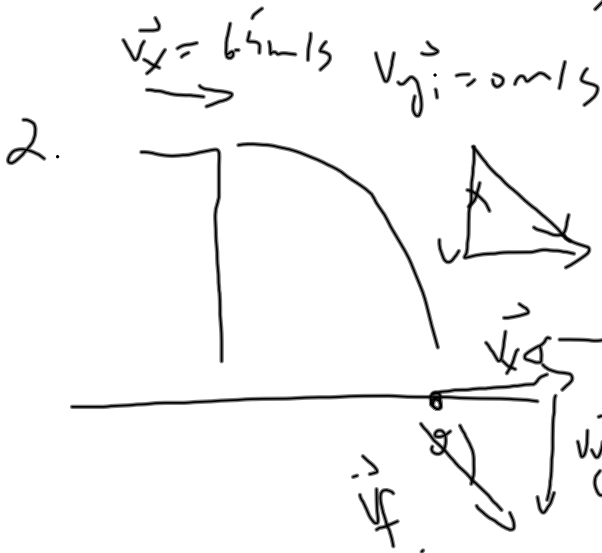
c) - same magnitude
 - opp directions.



Part 3.

1. $f = 0.45 \text{ Hz}$
 l in cm?
 $g_m = 0.40 g_E$

W_E
 $0.40 W_E$
 $[0.40 g_E]$
 $T = 2\pi \sqrt{\frac{l}{g}}$
 $l = 0.49 \text{ m}$
 $l = 49 \text{ cm}$



$\vec{v}_f = 21 \text{ m/s}, 72^\circ \text{ S of E}$

$v_{yf} = v_{yi} + 2z\eta$

\vec{v}_{yf}

3. $v = v_{max} \sqrt{1 - \frac{x^2}{A^2}}$
 $x = \sqrt{A^2 \left(1 - \frac{v^2}{v_{max}^2}\right)}$ ←
 $x = 5.4 \text{ m}$

* 4.

$\vec{v}_x = +30 \cos 30^\circ$
 $\vec{v}_y = +30 \sin 30^\circ$

horizontal	vertical
$\vec{x} = 6.5 \text{ m}$ ✓	$\vec{z} = -5.80 \text{ m/s}$
$\vec{v}_x = 30 \cos 30^\circ$ ✓	$\vec{v}_{y_i} = 30 \sin 30^\circ$
$t = \frac{x}{v_x}$ ✓	$\vec{y} = \vec{v}_{y_i} t + \frac{1}{2} \vec{z} t^2$ ✓
$t = 2.50 \text{ s}$ ✓	$\vec{y} = +6.89 \text{ m}$
	h.m ground = $6.88 \text{ m} + 2.0 = 8.9 \text{ m}$

b) direction \Rightarrow velocity

$$\vec{v}_{y_f} = \vec{v}_{y_i} + \vec{z} t$$

$$= -9.5 \text{ m/s}$$

$$\vec{v}_{y_f} = \sqrt{\vec{v}_{y_i}^2 + 2\vec{z}\vec{y}}$$

$$\vec{v}_{y_f} = \begin{pmatrix} + \\ - \end{pmatrix}$$

5. $f = \frac{28.0 \text{ cycles}}{12.0 \text{ s}} \frac{\#}{t} \Rightarrow$

$$T = \frac{1}{f}$$

$$T = \frac{12.0 \text{ s}}{28.0 \text{ cycles}} = 0.4286 \text{ s}$$

- a) $k = 39.1 \frac{\text{N}}{\text{m}}$
 - b) 0.197 m
 - c) 2.89 m/s
- $E_T = \frac{1}{2} m v_{max}^2$

$$v_{max} = \frac{kA}{m}$$

$$v_{max} = \frac{kA^2}{m}$$

$$v_{max} = \frac{kA}{m^2}$$

$$x = 0$$

$$E_T = \frac{1}{2} k x^2 + \frac{1}{2} m v^2$$

$$E_T = \frac{1}{2} m v_{max}^2$$

Test-Unit 2

Problems

1. Circular Motion

$\Rightarrow L1 + L2 \Rightarrow$ Uniform ~~Horizontal~~ Motion

\Rightarrow ~~*~~ $L1 \Rightarrow$ Vertical Circular Motion

$L1 + L2 \Rightarrow$ Unbanked ~~Curves~~

$L1 \Rightarrow$ Banked ~~Curves~~

2. Universal Gravitation

$$F = G \frac{m_1 m_2}{r^2}$$

3. Speed and Period of Objects in Space

4. Kepler's ~~Third~~ Law $\frac{T_A^2}{r_A^3} = \frac{T_B^2}{r_B^3}$

5. $g \Rightarrow$ when on the central body's surface

6. SHM \rightarrow ~~Pendulum~~ + Mass on Spring

7. Projectiles \Rightarrow Launched ~~Horizontally~~
 \Rightarrow Launched at an Angle

5 Problems - Formulas Will Be Provided

Attachments

Student ID re-takes 2013.doc