1 2 3 4 5 6 7 8 9 10

00 : 22 : 52

Question 1 / 10

A particle moves from origin with initial velocity v=11i+2j m/s and constant ac
$a=2i+4j\ m/s^2$. At what time (in sec.) rather than zero its x-position is the sam
position

1. 06
2. 07
3. 08
4. 09
5. 010

Next

إضافة ملاحظة

http://exam2.hu.edu...

acer

إضغط على الرقم للإنتقال مباشرة للسؤال

1 2 3 4 5 6 7 8 9 10

00 : 19 : 3

Question 2 / 10

A bullet was fired with angle A, such that its horizontal range is equal to seven times of maximum height. What is the angle A (in degree)

1. ○33.7
2. ○29.7
3. ○26.6
4. ○24
5. ○21.8

Previous Next

Calculator http://exam2.hu.edu...

رقم الطالب : ٤٤٣٧٧٠٥ إسم محمد خالد محمد ابو حماد]التخصص : الهندسة الميكانيكية

إستعمل على الرقم للإنتقال مباشرة للسؤال

1 2 3 4 5 6 7 8 9 10

00 : 18 : 57

Question 3 / 10

An object is fired from a certain height (y) with speed 50m/s at angle 37° below the horizontal; it struck the ground 2 sec. later. What is the height y (in m) (Use g = 10m/s^2)

1. ○80
2. ○200
3. ○360
4. ○560
5. ○800

إضغط على الرقم للإنتقال مباشرة للسؤال

1 2 3 4 5 6 7 8 9 10

00 : 05 : 7

Question 4 / 10

The speed (in cm/s) of a particle moving on the x-axis varies with time according to the equation $v = -5t^2 + 4t - 6$. What is the average acceleration (in cm/s^2) of the particle between t=0 and t=2 sec.

1. -1
2. -6
3. -11
4. -16
5. -21

Previous Next

Mark this

إضغط على الرقم المطلوب
1 2 3 4 5 6 7 8 9 10

00 : 44 : 55

Question 5 / 10

Consider a Vector A= -4i+2j-3k and a vector B= -6i+4j, if A+B+11C = 8i+19j+4k . What the magnitude of C

1. ○2.8
2. ○2.4
3. ○2.2
4. ○1.97
5. ○1.8

Previous | Next

إضافة ملاحظة

http://exam2.hu.edu...

acer

رقم الطالب : ١٤٣٧٧٠٥ إسم محمد خالد محمد ابو حماد التخصص : الهندسة الميكانيكية

إضغط على الرقم للإنتقال مباشرة للسؤال

1 2 3 4 5 6 7 8 9 10

00 : 18 : 50

Question 6 / 10

The minimum distance required stopping an object moving at 20 m/s is 40m. What is the minimum stopping distance (in m) for the same car moving at 50 m/s, assuming the same rate of acceleration?

1. ○90
2. ○160
3. ○250
4. ○360
5. ○490

start Calculator http://lms.ou2.ku.edu...

acer

محمد خالد محمد ابو حماد التخصص : الهندسة الميكانيكية

إضغط على الرقم للإنتقال مباشرة للسؤال

1 2 3 4 5 6 7 8 9 10

00 : 18 : 46

Question 7 / 10

The displacement can be represented as the

1. ○ Slope of tangent of the velocity - time curve
2. ○ Area under acceleration - time curve
3. ○ Slope of tangent of the acceleration - time curve
4. ○ Area under average speed - time curve
5. ○ Area under velocity - time curve

Previous Next

start Calculator http://exam2.hu.edu...

acer

إضغط على الرقم للإنتقال مباشرة للسؤال

1 2 3 4 5 6 7 8 9 10

8/10

00 : 40 : 29

Question

A stone is thrown vertically upward with initial velocity v_0 and return to its initial position in 4.5 seconds. The initial velocity v_0 (in m/s) equal (Use $g=10m/s^2$):

1. ○15
2. ○17.5
3. ○20
4. ○22.5
5. ○25

Previous Next

إضافة ملاحظة

http://exam2.hu.edu...

acer

لإنتقال مباشرة للسؤال

1 2 3 4 5 6

00 : 58

Question 9 / 10

Which of the following has a basic unit

1. ○ Weight
2. ○ Mass
3. ○ Acceleration
4. ○ Area
5. ○ Density

Previous

start | Calculator | http://exam2.hu.edu...

إضغط على الرقم للإنتقال مباشر ة للسؤال

1 2 3 4 5 6 7 8 9 10

Finsh

00 : 56 : 16

Question 10 / 10

A boll is dropt from the top of a building, at the same instant a cart 13m a way from the base of the building starts to move with constant speed of 5m/s toward the building so that the ball comes over the cart. What is the height (in m) of the building? (Use $g=10m/s^2$)

1. ○33.8
2. ○39.2
3. ○45
4. ○51.2
5. ○57.8

Previous

إضافة ملاحظة

://exam2.hu.edu...

acer

Q1 $v_{ix} = 5\,m/s$, $v_{iy} = 2\,m/s$, $a_x = 2\,m/s^2$, $a_y = 4\,m/s^2$

$\Delta x = \Delta y$

$\Delta x = v_{ix} t + \frac{1}{2} a_x t^2$

$\Delta y = v_{iy} t + \frac{1}{2} a_y t^2$

$v_{ix} t + \frac{1}{2} a_x t^2 = v_{iy} t + \frac{1}{2} a_y t^2$

$5t + \frac{1}{2}(2)t^2 = 2t + \frac{1}{2}(4)t^2$

$5t + t^2 = 2t + 2t^2$

$3t = t^2 \longrightarrow \boxed{t = 3\,s}$

Q2 $R = 7h$

$R = \frac{v_i^2 \sin(2\theta_i)}{g}$, $h = \frac{v_i^2 (\sin\theta_i)^2}{2g}$

مقارنة

$\frac{v_i^2 \sin(2\theta)}{g} = 7\left(\frac{v_i^2 (\sin\theta)^2}{2g}\right)$

$2\sin\theta\cos\theta = \frac{7}{2}(\sin\theta)^2$

$\frac{4}{7} = \tan\theta \longrightarrow \theta = \tan^{-1}\left(\frac{4}{7}\right)$

$\boxed{\theta = 29.7}$

إعداد الطالب: سعد [illegible]

Q3 $\vec{v_i} = 50\,m/s$, $\theta = 37$ (below the horizontal)

$t = 2s$, $g = 10\,m/s^2$

$v_{iy} = v_i \sin\theta \longrightarrow v_{iy} = 50 \times \sin 37$ $\boxed{v_{iy} = -30\,m/s}$

$\Delta y = v_{iy} t - \frac{1}{2} g t^2$

$\Delta y = -30 \times 2 - \frac{1}{2}(10)(2)^2$

$\Delta y = -80 \longrightarrow \boxed{y_f = 80\,m}$

Q4 $v = -5t^2 + 4t - 6$, $t_i = 0$, $t_f = 2s$

$\bar{a}_{avg} = \frac{v_f - v_i}{t_f - t_i}$

$v_{i\cdot} = -5(0)^2 + 4(0) - 6 \longrightarrow \boxed{v_i = -6\,m/s}$

$v_f = -5(2)^2 + 4(2) - 6 \longrightarrow \boxed{v_f = -18\,m/s}$

$\bar{a}_{avg} = \frac{-18 - -6}{2 - 0} \longrightarrow \boxed{a = -6\,m/s^2}$

Q5 $\vec{A} = -4\hat{i} + 2\hat{j} - 3\hat{k}$, $\vec{B} = -6\hat{i} + 4\hat{j}$

If $\vec{A} + \vec{B} + 11\vec{C} = 8\hat{i} + 10\hat{j} + 4\hat{k}$

Find $|\vec{C}|$?

$-4\hat{i} + 2\hat{j} - 3\hat{k} - 6\hat{i} + 4\hat{j} + 11\vec{C} = 8\hat{i} + 10\hat{j} + 4\hat{k}$

$11\vec{C} = 18\hat{i} - 4\hat{j} + 7\hat{k}$

$\vec{C} = 1.6\hat{i} - 0.4\hat{j} + 0.6\hat{j}$

$|\vec{C}| = \sqrt{(1.6)^2 + (-0.4)^2 + (0.6)^2}$ $\longrightarrow$ $\boxed{|\vec{C}| = 1.8}$

Q6 $v_{(I)} = 20\,m/s$ at $\Delta x = 40\,m$

$v_{(II)} = 50\,m/s \longrightarrow \Delta x = ??$

* نفس التسارع

$a_I = a_{II}$

$$\frac{v_{f_I}^2 - v_{i_I}^2}{2\Delta x_I} = \frac{v_{f_{II}}^2 - v_{i_{II}}^2}{2\Delta x_{II}}$$

$$\frac{0 - (20)^2}{40} = \frac{0 - (50)^2}{\Delta x_{II}}$$

$\Rightarrow \boxed{\Delta x_{II} = 250\,m}$

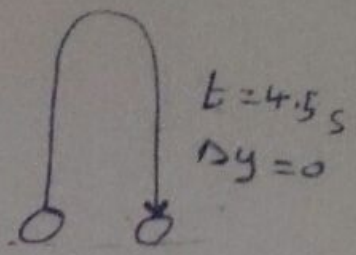
Q7

Area under velocity - time curve

إعداد الطالب علاء أبو لبن

Q8

4.5 = زمن الرحلة كاملة



$$\Delta y = v_i t - \frac{1}{2} g t^2$$

$$0 = v_i(4.5) - \frac{1}{2}(10)(4.5)^2$$

$$-4.5 v_i = -101.3 \rightarrow \boxed{v_i = 22.5 \text{ m/s}}$$

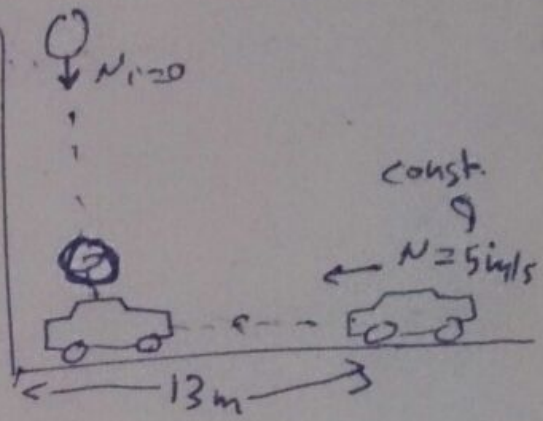
Q9

- Mass

Q10

* فكرة السؤال :-

أسقطت كرة من أعلى بناية وفي نفس اللحظة تحركت سيارة تبعد عن البناية (13م) بسرعة ثابتة مقدارها (5 m/s). وعند وصول السيارة الى البناية اصطدمت بها الكرة ، احسب ارتفاع البناية .



$$t = \frac{\Delta x}{v} \rightarrow t = \frac{13}{5} \rightarrow \boxed{t = 2.6 \text{ s}}$$

$$\Delta y = v_i t - \frac{1}{2} g t^2$$

$$\Delta y = -\frac{1}{2}(5)(2.6) \rightarrow \boxed{h = 33.8 \text{ m}}$$

إعداد الطالب علاء أبو لبن