Name: Omarc Farcuk Registration Number: 2019831055 PHY 103W R hoursented monge (m) (a) phisology tollers of

Paret A

g = acceleration due to gratify (9.8 m/2)

and latinosistant all Amost toothe gives Not 1/2 algors 9

(0)

Projectile motion in the motion of an object thrown or projected into the air, pubject to only the acceleration of grabity.

> Amn to the que: No-1 (b)

expression for horizontal trange in-

Let total time of flight of a projectile to T. 191 Then I velocity of a projectific in a continuous tratamo

$$\Rightarrow 0 = \sqrt{sm\theta} - 3 \times \frac{T}{2}$$

$$\Rightarrow T = \frac{245 \text{ m}\theta}{4}$$

Here,

> Tyo = Vosin Q, Velocity in maximum height

0 = angle of the mitial velocity from the horozontal plane

Let the horrizontal tronge, R;

R= Vx xIT

$$R = \frac{\sqrt{2} \sin 2\theta}{\sqrt{2}}$$

= 0 = (metine) - 29H

 $R = \frac{\sqrt{2} \sin 2\theta}{11 \sin^2 \theta}$ F littled invisional of

horozontal tronge of a projectile in, $R = \frac{v_0^2 \sin 2\theta}{9}$

let, it is relieured to be the best total to! Constant velocity of a projectile in x-axin and Y-axis-

1/2 = 16 cono

HE And

and Vy= V6mo-9t

thill to soit a T Therefore, the initial velocity of Y-axis-Vy = Vosimo

we know that, yet most

> 0 = (v65me)2-29H

> 29H = (45m8)2

of xb. Jagsv = 0 co

H= maximum height of the projection

 $\Rightarrow H = \frac{\sqrt{6^2 \text{sim}\theta^2}}{29}$

Distint of

50, maximum height of a projective in, $H = \frac{V_0^2 \sin \theta^2}{29}$ of that shoulders the property of the property of the second court to

King Pr

Ano : to the que: NO-2

(a)

A conservative force is a borde with the property that the total work done in moving a particle between two points in independent of the path taken. If a particle travels in a closed loop, the total work done by a conservative force is zero.

Ama: to the qua: No-2

the to the (d) ve; No -

Gilven that.

The F(x) = (6x2+2x) Norvon and Major and mail

we know, the total work,

 $W = \int_{1} F(x) dx dx dx = 0$ $W = \int_{1} F(x) dx dx dx = 0$ $W = \int_{1} F(x) dx dx dx = 0$

mont notified of 21 on party of for party to 12 Lowers bound = -1

or tout rolling (622+239) dx ling parent of him soft

=
$$\left[6 \times \frac{2^3}{3} + 2 \times \frac{2^2}{2}\right]^2$$
 which and a strong of some block and the solution of the proof of the proof of the proof of the proof of the particle moves from So the work done by the particle moves from a proof of the work done by the particle moves from a proof of the work done by the particle moves from the particle moves from

2-04 : Aup. of ; and

x=-1 to x=2m in 21j

Ama to the gue: No-3

when wave energy like nound on tradio waven travely brown two objects, the wavelength can neem to be changed if one or both of them are moving. This is called Dopplet effect. The Dopplet effect causes the treasered brequency of a nounce to differ from the sent brequency if there is motion that is

increasing or decreasing the distance between the source and the treceiver.

(NET)) = 00 A (

Amas to the que: No-3

(b)

The approaching frequency,

$$f_{\alpha}' = \frac{V}{(V-V_s)} \times f...(i)$$

Herre,

V= Velocity of nound wave

The passing frequency,

Vs = Velocity of nounce = 72 km/

= 20ms

f = actual frequency

(i) - (ii)

$$f_{\alpha'} - f_{b'} = \left(\frac{V}{V - V_S} \times f\right) - \left(\frac{V}{V + V_S} \times f\right)$$

\$ 500 = 7 (340 - 01) 340 - 20 months no prince mail

 \Rightarrow 500 = $f(\frac{17}{144})$

⇒ f = 4235.29 HZ

So, the frequency of the whintle in 4235.29 Hz.

(d)

The opproching the woney.

To = (v. v.) - x f ()

magail of an of 5 hospin

Ve Velocity of neumon

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the delta the way to the