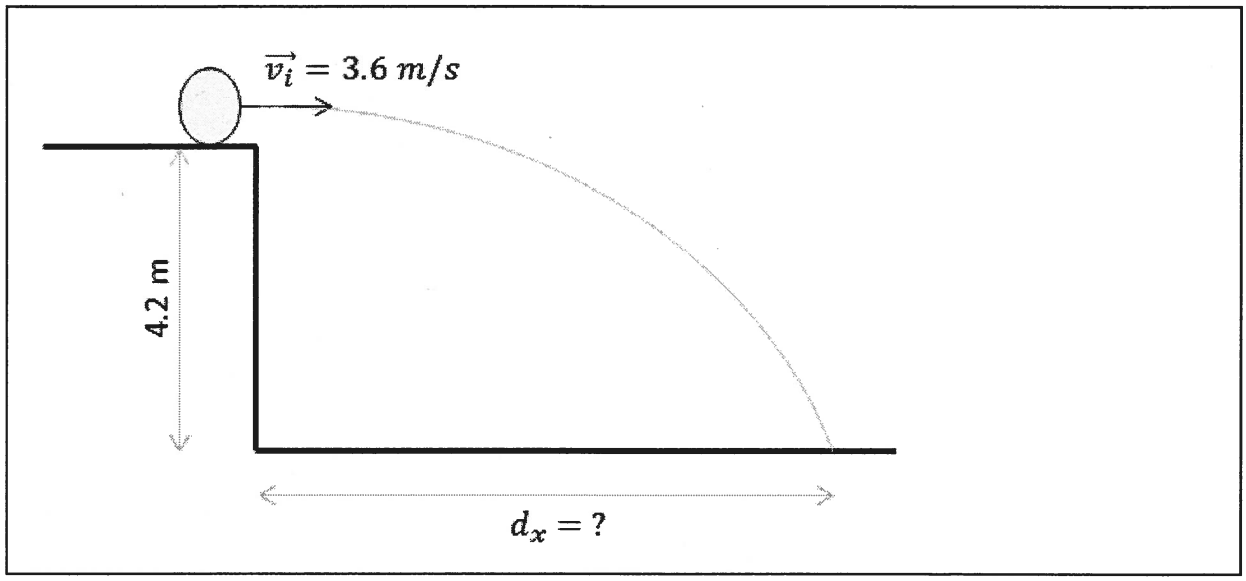
KEY

First Name:_____ Last Name:_____

L12 – FQ – Projectile Motion in the Horizontal

Use the following information to answer Q1-Q3:



Q1: The ball takes ***a.bc*** x 10^{-d} seconds to reach the ground, where ***a, b, c,*** and ***d*** are ___, ___, ___, and ___.

*(Record your **four-digit** answer in the Numerical Response boxes below)*

9	2	5	1

y-comp

$\vec{v}_i = 0\ m/s$

$\vec{\Delta d} = -4.2\ m$

$\vec{a} = -9.81\ m/s^2$

$t = ?$

$d = v_i t + \frac{1}{2} a t^2$

$-4.2 = (0)t + \frac{1}{2}(-9.81)t^2$

$-4.2 = 0 - 4.905t^2$

$-4.2 = -4.905t^2$

$0.856269... = t^2$

$t = 0.925348...\ s$

$t = 9.25348... \times 10^{-1}\ s$

$t \approx 9.25 \times 10^{-1}\ s$

$a.bc \times 10^{-d}$

Q2: How far away from the ledge does the ball land, in meters?

*(Record your **four-digit** answer in the Numerical Response boxes below)*

3	.	3	3

x-comp

$v_x = 3.6\ m/s$

$t = 0.925348\ s$

$d_x = ?$

$v = \frac{d}{t}$

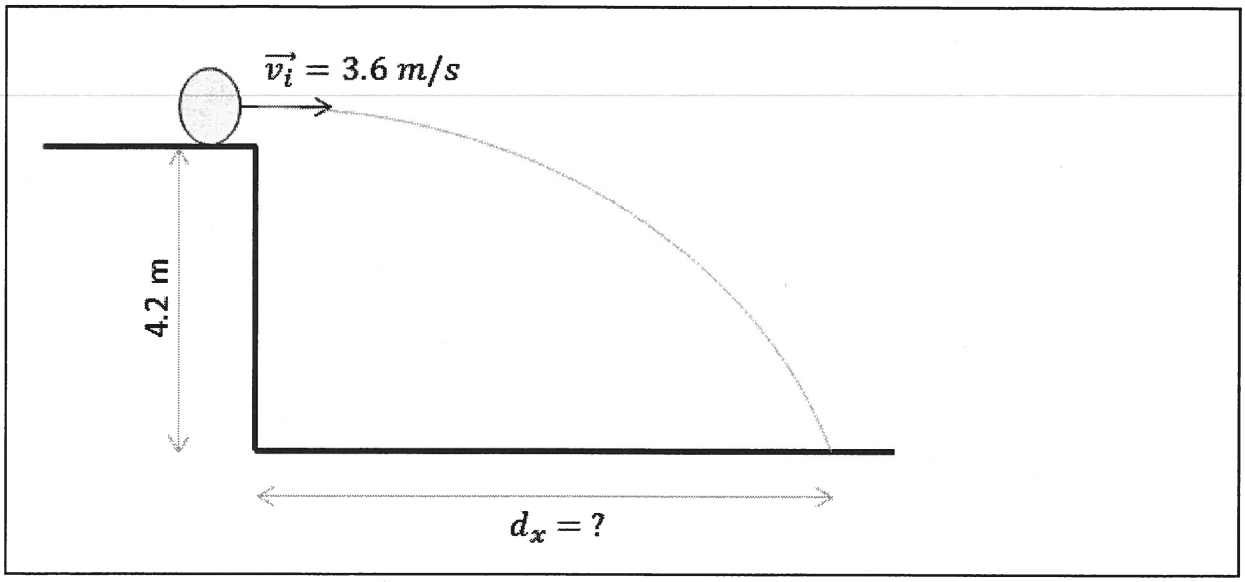
$d = vt$

$= (3.6)(0.925348)$

$= 3.33\ m$

Key

Use the following information to answer Q1-Q3:



Q3: How fast is the ball travelling after 0.5 seconds? *(2 marks)*

x-comp

$t = 0.5s$

$V_x = 3.6s$

$d_x = ?$

y-comp

$t = 0.5s$

$V_i = 0\ m/s$

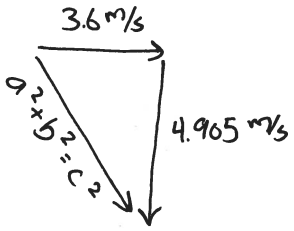
$a = -9.81\ m/s^2$

$V_f = ?$

$$a = \frac{V_f - V_i}{t}$$

$$-9.81 = \frac{V_f - 0}{0.5}$$

$$V_f = -4.905\ m/s$$



$a^2 + b^2 = c^2$

$c = 6.08$

$V_f = 6.08\ m/s$

MARKING:

Beginning	0.0 – 1.5
Progressing	2.0 – 2.5
Competent	3.0 – 3.5
Exemplary	4.0