

Quiz 3

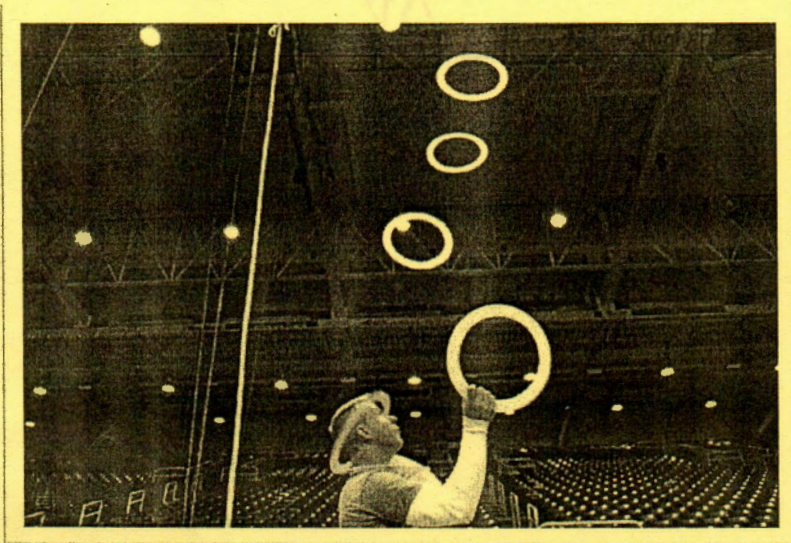
PHYS 2211

Principles of Physics I

Quiz 3

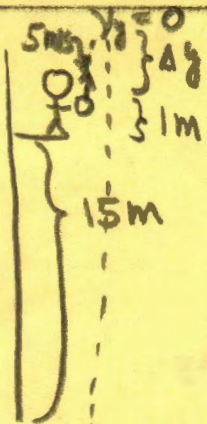
Name Charles John

Show all work in the spaces provided.



A circus performer juggling while standing on a platform 15.0 m high tosses a ball directly upward into the air at a speed of 5.0 m/s.

A) If it leaves his hand 1.0 m above the platform, what is the ball's maximum height from the platform? (5 pts)



$$v_y^2 = v_{y0}^2 + 2a_y \Delta y$$

$$\Delta y = \frac{-v_{y0}^2}{2a_y} = \frac{-(5 \text{ m/s})^2}{2(-9.8 \text{ m/s}^2)}$$

$$\Delta y = 1.276 \text{ m}$$

from platform 2.27 m

B) If the juggler misses the ball, at what speed will it hit the floor? (5 pts)

$$v_y^2 = v_{y0}^2 + 2a_y \Delta y$$

$$v_y = \sqrt{2a_y \Delta y}$$

$$v_y = \sqrt{2(-9.8 \text{ m/s}^2)(-17.27 \text{ m})}$$

$$v_y = -18.4 \text{ m/s} //$$

Quiz 3

PHYS 1111

Introductory Physics I

Quiz 3

Name Charles Johnson

Show all work in the spaces provided



In Mostar, Bosnia, the ultimate test of a young man's courage once was to jump off a 400-year-old bridge (now destroyed) into the River Neretva, 23 m below.

A) How long did the jump last? (5 pts)

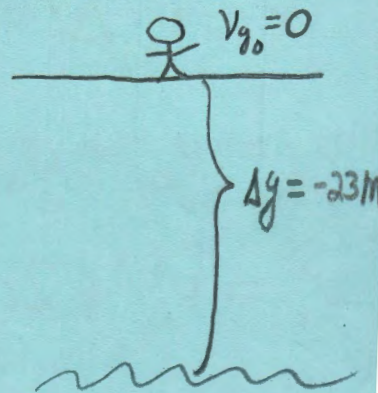
$$\Delta y = v_{y0}t + \frac{1}{2}a_y t^2$$

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

$$t = \sqrt{\frac{2\Delta y}{a_y}}$$

$$t = \sqrt{\frac{2(-23\text{m})}{-9.8\text{m/s}^2}}$$

$$t = 2.167\text{s}$$



B) How fast was the diver traveling on impact with the river? (5 pts)

$$v_y = v_{y0} + a_y t$$

$$v_y = 0 + a_y t$$

$$v_y = (-9.8\text{m/s}^2)(2.167\text{s})$$

$$v_y = -21.24\text{m/s} //$$