Physics 2205 26 October, 1999
Quiz 8—Form A

1. What is the gauge pressure at the bottom of a swimming pool 3 m deep? The density of water is 1000 kg/m^3.

A) 3×10^3 N/m^2
B) 2.9×10^4 N/m^2
C) 1.0×10^5 N/m^2
D) 1.3×10^5 N/m^2

2. A wheel of radius 0.4 m takes 10 seconds to stop when decelerated at a rate of 25 rad/s^2. What was the initial velocity of the rim?

A) 2.5 m/s
B) 100 m/s
C) 250 m/s
D) 625 m/s

Equations and constants:

$\Delta P = \rho g h$
$F_b = \rho_{fluid} V_d g$
$g = 9.8$ m/s^2
$v = \omega r$
$\theta = (\frac{1}{2}) \alpha t^2 + \omega_o t + \theta_o$
$\omega = \alpha t + \omega_o$
$\omega^2 = \omega_o^2 + 2\alpha(\theta - \theta_o)$

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Quiz 8—Form B

1. What is the bouyant force on a 24 kg rock of volume 0.0080 m^3 at the bottom of a pool 3 m deep? The density of water is 1000 kg/m^3?

A) 78 N
B) 160 N
C) 240 N
D) none of the above

2. A wheel of radius 0.4 m slows from 25 rad/s to a halt in 10 seconds. What was its angular deceleration?

A) $-1.0\ rad/s^2$
B) $-2.5\ rad/s^2$
C) $-10\ rad/s^2$
D) $-250\ rad/s^2$

Equations and constants:

$\Delta P = \rho\, g\, h$
$F_b = \rho_{fluid}\, V_d\, g$
$g = 9.8\ m/s^2$
$v = \omega\, r$
$\theta = (\frac{1}{2})\,\alpha t^2 + \omega_o t + \theta_o$
$\omega = \alpha t + \omega_o$
$\omega^2 = \omega_o^2 + 2\alpha(\theta - \theta_o)$