

CHERCHER SECONDARY SCHOOL
Grade 12Th Physics Work Sheet From Unit Two

From The Given Alternatives Choose The Best Answer

1. A satellite of mass m and speed v moves in a stable, circular orbit around a planet of mass M . What is the radius of the satellite's orbit?

(A) $\frac{Gv}{mM}$ (B) $\frac{GM}{v^2}$ (C) $\frac{GmM}{v}$ (D) $\frac{GmM}{v^2}$

2. A person weighing 800 Newton's on Earth travels to another planet with twice the mass and twice the radius of Earth. The person's weight on this other planet is most nearly

(A) 400 N (B) $800/\sqrt{2}$ N (C) $800\sqrt{2}$ N (D) 1,600 N

3. A ball attached to a string is whirled around in a horizontal circle having a radius R . If the radius of the circle is changed to $4R$ and the same centripetal force is applied by the string, the new speed of the ball is which of the following? (A) One-quarter the original speed (B) One-half the original speed (C) The same as the original speed (D) Twice the original speed

4. A satellite of mass M moves in a circular orbit of radius R with constant speed v . True statements about this satellite include which of the following? Select two answers.

- (A) Its angular speed is v/R . (B) The gravitational force does work on the satellite.
 (C) The magnitude and direction of its centripetal acceleration is constant.
 (D) Its tangential acceleration is zero.

5. A turntable that is initially at rest is set in motion with a constant angular acceleration α . What is the angular velocity of the turntable after it has made one complete revolution?

(A) $\sqrt{2\alpha}$ (B) $\sqrt{2\pi\alpha}$ (C) $\sqrt{4\pi\alpha}$ (D) $4\pi\alpha$

6. A wheel with rotational inertia I is mounted on a fixed, frictionless axle. The angular speed ω_0 of the wheel is increased from zero to ω_f in a time interval T . What is the average net torque on the wheel during this time interval?

(A) $\frac{\omega_f}{T}$ (B) $\frac{I\omega_f^2}{T}$ (C) $\frac{I\omega_f}{T^2}$ (D) $\frac{I\omega_f}{T}$

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7. A flywheel is rotating with an angular velocity of 1.4 rad/s and is acted on by an acceleration of 0.6 rad/s^2 . What angular velocity will it have attained after three complete turns?
A. 24.6 rad/s . **B.** 34.6 rad/s . **C.** 4.96 rad/s . **D.** 5.96 rad/s .
8. A body of mass 10 kg is moving with velocity of 2 m/s . If a force of 20 N is applied on the body. What will be its velocity after 5 sec ? **A.** 2 m/s . **B.** 10 m/s . **C.** 12 m/s . **D.** 20 m/s .
9. A wheel starts from rest and rotates with constant angular acceleration to reach an angular speed of 12 rad/s in 3 s . What is the magnitude of the angular acceleration of the wheel in and the angle in radians through which it rotates in this time interval respectively?
A. $4, 18$ **B.** $3, 18$ **C.** $18, 5$ **D.** $18, 4$
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