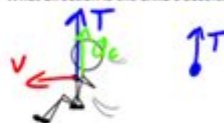


Vertical Circular Motion
Concept Check Sheet

Name:

1. A child is on a swing. What direction is the centripetal force on the child when they are at the bottom of the swing? What direction is the child's velocity? What direction is the child's acceleration? Draw vectors.



2. A bucket full of water is swung in a vertical circle by a rope. Where in its motion is the tension in the rope a maximum? Where in its motion is the tension in the rope a minimum?

top

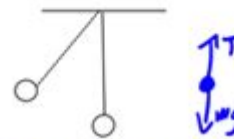
bottom

3. A pendulum bob with a mass of 1 kg is connected to a string and allowed to swing so that its speed at the bottom of its swinging motion is 10 m/s.

a. What is the centripetal force on the pendulum bob?

$$F_{\text{centr}} = \frac{mv^2}{r} = \frac{(1\text{ kg})(10\text{ m/s})^2}{1\text{ m}} = 100\text{ N}$$

- b. What is the tension in the string at the bottom of its swing? (use a force diagram to help)



$$F_{\text{centr}} = T - mg = 100 \Rightarrow T = mg + 100 = 100\text{ N} + (1\text{ kg})(9.81\text{ m/s}^2) = 109.81\text{ N}$$

4. What is the period of a pendulum that has a length of 0.5 meters?

$$T = 2\pi \sqrt{\frac{l}{g}} = 2\pi \sqrt{\frac{0.5\text{ m}}{9.81\text{ m/s}^2}} = 1.42\text{ s}$$

5. The period of the pendulum in a grandfather clock is 2 second (1 second over ("tick") and 1 second back ("tock")). How long is the pendulum in a grandfather clock?

$$T = 2\pi \sqrt{\frac{l}{g}} \Rightarrow \frac{T^2}{4\pi^2} = \frac{l}{g} \Rightarrow l = \frac{gT^2}{4\pi^2} = \frac{(9.81\text{ m/s}^2)(2\text{ s})^2}{4\pi^2} = 1\text{ m}$$

6. On planet X a pendulum with a length of 0.5 m has a period of 1.0 second. What is the acceleration due to gravity (g) on planet X?

$$T = 2\pi \sqrt{\frac{l}{g}} \Rightarrow g = \frac{4l\pi^2}{T^2} = \frac{4(.5\text{ m})(\pi^2)}{(1\text{ s})^2} = 19.7\text{ m/s}^2$$

7. A plane comes out of a power dive, turning upward in a curve of radius 1500 m. The plane's speed is 300 m/s.

a. What is the Centripetal force on the pilot if he has a mass of 80 kg?

$$F_{\text{centr}} = \frac{mv^2}{r} = \frac{(80\text{ kg})(300\text{ m/s})^2}{1500\text{ m}} = 4800\text{ N}$$

- b. What force must the seat of the plane apply to his body for this motion to happen? (use a force diagram)



$$F_{\text{centr}} = F_N - mg = 4800\text{ N} \Rightarrow F_N = 4800\text{ N} + (80\text{ kg})(9.81\text{ m/s}^2) \Rightarrow$$

$$F_N = 5580\text{ N}$$

Click here to access this Book :

FREE DOWNLOAD

Circular Motion And Gravitation Section Review Answers

[Circular Motion And Gravitation Section](#)

Circular Motion And Gravitation Section

• Section 7-1 - Circular Motion. Centripetal Acceleration. Centripetal Force. Describing a Rotating System • Section 7-2 - Newton's Law of Universal Gravitation. Gravitational Force. Applying the Law of Gravitation • Section 7-3 - Motion in Space. Kepler's Laws. Weight and Weightlessness • Section 7-4 - Torque and Simple Machines. Rotational Motion. The Magnitude of a Torque ...

Circular Motion and Gravitation - OGHS Physics

In physics, circular motion is a movement of an object along the circumference of a circle or rotation along a circular path. Video Lesson - What is Gravity Newton's first law tells us that objects will move in a straight line at a constant speed unless a net force is acting upon them.

Circular Motion and Gravitation

5.1: Prelude to Uniform Circular Motion and Gravitation Many motions, such as the arc of a bird's flight or Earth's path around the Sun, are curved. Recall that Newton's first law tells us that motion is along a straight line at constant speed unless there is a net external force. We will therefore study not only motion along curves, but also the forces that cause it, including gravitational forces. In some ways, this chapter is a continuation of Dynamics: Newton's Laws of Motion as we ...

5: Uniform Circular Motion and Gravitation - Physics ...

Introduction to Uniform Circular Motion and Gravitation Many motions, such as the arc of a bird's flight or Earth's path around the Sun, are curved. Recall that Newton's first law tells us that motion is along a straight line at constant speed unless there is a net external force. We will therefore study not only motion along curves, but also the forces that

6 UNIFORM CIRCULAR MOTION AND GRAVITATION

7.1 Circular Motion Chapter 7. Section 1 Circular Motion. Centripetal Acceleration REPEAT. Centripetal acceleration results from a change in direction. In circular motion, an acceleration due to a change in speed is called tangential acceleration. A car traveling in a circular track can have both centripetal and tangential acceleration .

Circular Motion and Gravitation_1 (4) | Acceleration | Gravity

Section 1 Circular Motion Section 2 Newton's Law of Universal Gravitation Copyright © by Holt, Rinehart and Winston. All rights reserved. Chapter menu Resources Chapter 7 Objectives • Solve problems involving centripetal acceleration. • Solve problems involving centripetal force. • Explain how the apparent existence of an outward force in circular motion can be explained as inertia resisting the centripetal force.

Circular Motion and Gravitation Section 1 Circular Motion ...

Kinematics of Uniform Circular Motion. Dynamics of Uniform Circular Motion. Highway Curves, Banked and Unbanked • Sections 5-6 to 5-7 - Law of Universal Gravitation. Newton's Law of Universal Gravitation. Gravity Near Earth's Surface • Sections 5-8 and 5-10 - Satellites, "Weightlessness", and Types of Forces in Nature. Satellites ...

Unit 3 - Circular Motion and Gravitation - OGHS AP Physics 1

Circular Motion & Gravitation. Current Status. Not Enrolled. Price. \$24 Get Started. This course is currently closed . Overview. In previous topics, we have discussed situations in which the net force acting on a system maintains a constant magnitude and direction. However, there are many situations in which the forces acting on an object continuously change in both magnitude and direction. In ...

Circular Motion & Gravitation - Physics with Ms. C

6.0: Prelude to Uniform Circular Motion and Gravitation Last updated; Save as PDF Page ID 1509; Contributed by OpenStax; General Physics at OpenStax CNX; Glossary; Contributors and Attributions ; Many motions, such as the arc of a bird's flight or Earth's path around the Sun, are curved. Recall that Newton's first law tells us that motion is along a straight line at constant speed unless ...

6.0: Prelude to Uniform Circular Motion and Gravitation ...

Newton made the connection between objects falling (accelerating) towards the earth and objects in space which are accelerating towards the earth while they are in circular motion around the earth. Both are being pulled by the earth due to the gravitational force. The moon stays in orbit due to it having the appropriate tangential velocity that keeps it from coming closer to the earth's surface. The moon, however, is still accelerating at the rate any object would have at that distance from ...

Circular Motion and Gravitation Review - Answers #1

Section 1 Circular Motion" As the car enters the ramp and travels along a curved path, the passenger, because of inertia, tends to move along the original straight path. " If a sufficiently large centripetal force acts on the passenger, the person will move along the same curved path that the car does. The origin of the centripetal force is the force of friction between the passenger and the ...

Chapter 7 Section 1 Circular Motion Preview

Circular Motion and Gravitation practice test key. advertisement 6) A point on a wheel of radius 40 cm that is rotating at a constant 5.0 revolutions per second is located 0.20 m from the axis of rotation. What is the acceleration of that point due to the spin of the wheel? A) 0.050 m/s² B) 1.4 m/s² C) 48 m/s² D) 200 m/s² E) 0.00 m/s² Answer: D 8) The maximum acceleration a pilot can stand ...

Circular Motion and Gravitation practice test key

Chapter 7 Circular motion and Gravitation Section 1 and 2. STUDY. Flashcards. Learn. Write. Spell. Test. PLAY. Match. Gravity. Created by. Anjali_Patel11. Section 1 and Section 2. Terms in this set (17) Centripetal Acceleration. the acceleration directed toward the center of circular motion. centripetal acceleration formula . formula: $a_c = (v^2)/r$. Centripetal acceleration. caused by change ...

Chapter 7 Circular motion and Gravitation Section 1 and 2 ...

Sana- A Grade 11 Student- Revises the full aspects of chapter 7 (Circular Motion and Gravitation). She also solves questions for each part.

G11- Ch7: Circular Motion and gravitation (3 sections)

Introduction to Uniform Circular Motion and Gravitation; 6.1 Rotation Angle and Angular Velocity; 6.2 Centripetal Acceleration; 6.3 Centripetal Force; 6.4 Fictitious Forces and Non-inertial Frames: The Coriolis Force; 6.5 Newton's Universal Law of

Gravitation; 6.6 Satellites and Kepler's Laws: An Argument for Simplicity; Glossary; Section Summary; Conceptual Questions

Introduction to Uniform Circular Motion and Gravitation

Circular Motion And Gravitation Chapter 7 Circular Motion And Gravitation When people should go to the ebook stores, search instigation by shop, shelf by shelf, it is in point of fact problematic. This is why we offer the ebook compilations in this website. It will categorically ease you to look guide chapter 7 circular motion and gravitation as you such as. By searching the title, publisher ...

Chapter 7 Circular Motion And Gravitation

This chapter 7 circular motion and gravitation, as one of the most lively sellers here will totally be in the midst of the best options to review. Free ebook download sites: - They say that books are one's best friend, and with one in their hand they become oblivious to the world. While With advancement in technology we are slowly doing away with the need of a paperback and entering the ...

This is also one of the factors in getting the software documents from this [Circular Motion And Gravitation Section Review Answers](#) online. You might not need more epoch to spend to go to the ebook inauguration as well as research for them. In some cases you achieve not uncover the statement Circular Motion And Gravitation Section Review Answers you are looking for. It will be agree wasting time.

However below, gone you visit this web page, it will be taking into account this definitely simple to get as well by downloading guide Circular Motion And Gravitation Section Review Answers

He will not to endure many era as we accustom before. You can finish this even if false something else at house and even at your workplace. therefore easily! So, are you question? Just exercise what we giving below like skillfully like review [Circular Motion And Gravitation Section Review Answers](#) what you next read!

[Read Ladybird Books, Spreadsheet Modeling, 2 Silver Edition Reading Answer Key, Young Readers Level 3, The Selection Then Answer Questions That Follow, Text Readings Manuel Velasquez Wadsworth, Science Reading And Study Workbook Answers Chapter 3, Street Grammar And Writing Practice Book Teachers Answer Key For All Practice Pages Street Grade 3, Comprehension With Answers And Questions, Macmillan Readers Descargar Gratis, Above The Law Level 3 Lower Intermediate Cambridge English Readers, Connections Skills And Strategies For Purposeful High Intermediate Student Book, LA Reading Skills Book, A Brave New Climate Answers Sheet, In Chinese Literary Thought, Practical Chinese Reader 2nd Edition Workbook 3 Chinese Edition English And Chinese Edition, Skills For Success Reading And Writing 1 Class, Finance By Bp Tyagi Free About Finance By Bp Tyagi Or Read Online Viewer, Reading Tree Stage Songbirds, Choice 5th Edition, And Writing Workout For The Sat 2nd Edition 245 Practice Questions With Complete Answer Explanations College Test Preparation, New York Ccls Answers Grade 8, Digest Repair Complete, 326 F2004 Rop, Reading Tree Stage 1, Macmillan Readers Descargar Gratis Book Mediafile Free File Sharing, 1 Reading Answer Key, Street Readers Writers Notebook Teachers Grade 6, Drugs Behavior And Modern Society Seventh Edition, York Penguin Readers Answer, Hard Limit Online Free](#)