

Name _____ Date _____

Math Skills

Gravitational Potential Energy

After you study each example problem and solution, work out the practice problems on a separate sheet of paper. Write your answers in the spaces provided.

PROBLEM

An automobile is to be transported by ship to a distant port on the coast. If its gravitational potential energy is $6.0 \times 10^7 \text{ J}$, what is the automobile's mass?

SOLUTION

Step 1: List the given and unknown values.

Given: gravitational potential energy, $PE = 6.0 \times 10^7 \text{ J}$
height, $h = 7.1 \text{ m}$
free-fall acceleration, $g = 9.8 \text{ m/s}^2$

Unknown: mass, $m = ? \text{ kg}$

Step 2: Write the gravitational potential energy equation, and rearrange it to solve for mass.

$$\text{gravitational potential energy} = \text{mass} \times \text{free-fall acceleration} \times \text{height}$$

$$PE = mgh$$

$$\frac{PE}{gh} = \frac{mgh}{gh} = m$$

Step 3: Insert the known values into the equation, and solve.

$$m = \frac{6.0 \times 10^7 \text{ J}}{(9.8 \text{ m/s}^2)(7.1 \text{ m})} = \frac{6.0 \times 10^7 \text{ kg} \cdot \text{m}^2/\text{s}^2}{(9.8 \text{ m/s}^2)(7.1 \text{ m})}$$

$$m = 8.5 \times 10^5 \text{ kg}$$

PRACTICE

- The world record for pole vaulting is 4.17 m. If the pole vaulter's gravitational potential is $4,140 \text{ J}$, what is his mass?
- One of the tallest falls in the world is in Fajou, North Dakota. The tower is 425 m tall, or about six percent taller than the Sears Tower in Chicago. If a hot-air balloon is at the top of the tower, so that the gravitational potential energy associated with the hot air is $2,017 \text{ J}$, what is its mass?

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Math Skills Gravitational Potential Energy

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Skills Math Skills Gravitational Potential Energy

Skills Worksheet. Math Skills. Gravitational Potential Energy. After you study each sample problem and solution, work out the practice problems on a separate sheet of paper. Write your answers in the spaces provided. Problem. An automobile to be transported by ship is raised 7.0 m above the dock. If its gravitational potential energy is 6.6 (104 J, what is the automobile's mass?

01

Gravitational potential energy is the energy stored in an object due to its position above the Earth's surface. This is due to the force of gravity acting on an object. $E_p = m \times g \times h$

Gravitational Potential Energy - Online Math Learning

MATH SKILLS Gravitational Potential Energy An automobile to be transported by ship is raised 7.0 m above the dock. If its gravitational potential energy is 6.6×10^4 J, what is the automobile's mass? 1. List the given and unknown values. Given: gravitational potential energy, $PE = 6.6 \times 10^4$ J height, $h = 7.0$ m free-fall acceleration, $g = 9.8$ m/s²

Gravitational Potential Energy - Mr. Loyacano

2. Use the gravitational potential energy equation, and rearrange it to solve for height. 3. Substitute gravitational potential energy, mass, and free-fall acceleration values into the equation, and solve. 4. In 1993, Cuban athlete Javier Sotomayor set the world record for the high jump. The gravitational potential energy associated with

WORKSHEET 2019 Gravitational Potential Energy

Gravitational potential energy is changing into kinetic energy. Chemical energy is changing into gravitational potential energy. Heat energy is changing into kinetic energy.

Quiz & Worksheet - Gravitational Potential Energy | Study.com

Explain gravitational potential energy in terms of work done against gravity. Step-by-step answers are written by subject experts who are available 24/7. Questions are typically answered within 1 hour.* Q: The aurora is caused when electrons and protons, moving in the earth's magnetic field of ...

Answered: Explain gravitational potential energy... | bartleby

Gravitational potential energy = PE What mathematical equation can you use to calculate the unknown? Gravitational potential energy, $PE = mgh$ Substitute the information you know into the equation. $PE = mgh = (2,000 \text{ kg})(10 \text{ m/s}^2)(10 \text{ m})$ Multiply to find the unknown. $PE = 200,000 \text{ J} = 200 \text{ kJ}$ 3. Look Back and Check Is your answer reasonable?

Gravitational Potential Energy

Gravitational potential energy: E_p , for an object with a mass, m , a height, h , from the ground and gravitational field strength, $g=9.8\text{N/kg}$.

Energy equations - Staindrop Science - GCSE Physics

Free Gravitational Potential Energy - calculate gravitational potential energy step by step. This website uses cookies to ensure you get the best experience. By using this website, you agree to our Cookie Policy. Learn more Accept. Solutions Graphing Practice; Geometry beta; Notebook Groups Cheat Sheets; Sign In; Join; Upgrade; Account Details Login Options Account Management Settings ...

Gravitational Potential Energy Calculator - Symbolab

After they jump this potential energy gets converted into kinetic energy (and heat) as they speed up. Gravitational Potential Energy. When the PE is due to an objects height then: PE due to gravity = $m g h$. Where: m is the objects mass (kg) g is the "gravitational field strength" of 9.8 m/s^2 near the Earth's surface; h is height (m)

Potential and Kinetic Energy - MATH

and kinetic energy are the highest, and gravitational potential energy is the lowest. When the planet moves farther away, the speed and kinetic energy decrease, and the gravitational potential energy increases. At all points in the orbit, angular momentum and energy are conserved. This means that the Earth's distance from Sun

Gravitational potential energy at large distances review ...

Holt Science Spectrum 94 Work and Energy Skills Worksheet Math Skills Gravitational Potential Energy After you study each sample problem and solution, work out the practice problems on a separate sheet of paper. Write your answers in the spaces provided.

Gravitational_Potential_E_Math - Name Class Date Skills ...

$PE =$ gravitational potential energy (its international unit is $\text{kg m}^2 / \text{s}^2$ or Joule) The gravitational potential energy of object 1 : $EP_1 = m_1 g h_1 = (2)(g)(12) = 24 \text{ g}$. The gravitational potential energy of object 2 : $EP_2 = m_2 g h_2 = (4)(g)(9) = 36 \text{ g}$. C comparison of the potential energy of object 1 and object 2 : $PE_1 : PE_2 = 24 \text{ g} : 36 \text{ g} = 2 : 3$ 36 : 24/12 : 36/12. 2 : 3 [wpdm_package id ...

Gravitational potential energy - problems and solutions ...

$4.35 \times 10^1 \text{ J} = 3.00 \times 10^2 \times 1.4 \times 10^1 \text{ J} (8.5 \text{ min}) \times (60 \text{ s/min}) \times 2.7 \times 10^1 \text{ W total or } 9.0 \times 10^9 \text{ W per engine} \times 10^1 \text{ J } 5 \times 10^7 \text{ J } 1.5 \times 10^3 \text{ s } P \times 21 \times 746 \text{ w}$

TEACHER RESOURCE PAGE Answer Key

Skills Worksheet Math Skills Gravitational Potential Energy After you study each sample problem and solution, work out the practice problems on a separate sheet of paper. Write your answers in the spaces provided. PROBLEM An automobile to be transported by ship is raised 7.0 m above the dock. If its

Skills Worksheet Math Skills - Somerset Canyons

The term "Gravitational Potential Energy" comes from the fact that our bodies are made up of many tiny atoms, that are all loosely held together by gravity, causing these small atoms to repel each other, causing our bodies to move through the Earth and the Universe as a whole.

Eventually you will unquestionably experience new and talent by spending more money. again when? finish you take that you need to acquire these all needs taking have a lot of money? Why dont you try get something fundamental in the beginning? This is something that will guide to understand even more roughly the globe, the experience, some places, once history, fun and more?

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