

Nov 30-11:33 AM





Dec 1-8:24 AM





Dec 1-1:06 PM



Dec 1-8:37 AM



Dec 3-10:42 AM



a) What is her distance travelled?

b) What is her displacement?



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Ex.) A truck travels west for 3.0 h. Its displacement is then 2.60 x 10^2 km west from its starting point.

a) What is the average velocity of the truck?



Ex.) It takes 1.00 min for a sound wave to travel 2.0 x 10^1 km [W]. What is the velocity of sound, in m/s?

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Ex.) Bob drove from Edmonton to Calgary, a distance of 320 km. If he drives at a constant speed of 80 km/h, how long with it take him?

list all variables	formula	substitute (with units) and solve

Dec 3-9:27 AM



Ex.) Shelly walked at a constant speed of 2.00 m/s for 3.00 min. If she walked in a straight line, how far did she travel?

list all variables	formula	substitute (with units) and solve



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We use algebra to obtain the second form:



Ex.) A car is stopped at a red light. The light turns green and the car accelerates. After 6.00 s the car is travelling at a rate of 4.25 m/s. Determine the acceleration of the car.

list all variables	formula	substitute (with units) and solve

Dec 3-10:12 AM



Ex.) A golf ball is sitting on a tee. At a time 0.53 s after the ball is hit it is travelling with a speed of 65.0 km/h. What is the acceleration of the ball during that period?





Ex.) A cannonball is fired from a cannon with an initial velocity of 150 m/s. It has an acceleration of -2.50 m/s^2 due to air resistance. Determine the final velocity of the ball after 60 s of movement.

list all variables	formula	substitute (with units) and solve

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Ex.) An object starts from rest and accelerates 1.30 m/s^2 [N] for 6.00 s. What is the final velocity of the object?





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Ex.) A track athlete runs at a velocity of 8.1 m/s, then slows down to 4.1 m/s. Her acceleration is at a rate of -0.62 m/s^2 . How long did this change in velocity take?





Dec 3-11:11 AM



We focus on potential and kinetic energy.

<u>Potential Energy</u> - energy that is stored and held in readiness; energy that has the potential to do work (eg. gravitational, elastic, and chemical)

Kinetic Energy - energy of a moving object (eg. light, heat, and electricity)



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Dec 7-10:51 AM



Ex.) A 7.0 kg box is sitting on a shelf 2.5 m above the ground. What is it's potential energy?



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Ex.) A 45.0 kg diver is standing on a platform, she has 5345 J of potential energy. How high is the platform?





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it's mass?



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Ex.) What is the speed of an 800 kg car with a kinetic energy of $9.00 \times 10^4 \text{ J}$?





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Ex.) A baseball (13 g) is thrown at a speed of 16 m/s at 2.0 m above the ground. What is the total energy at the instant the ball was released?

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Ex.) A rock at the edge of a cliff is pushed and falls 17 m. If the rock has a mass of 2.5 kg, what speed does it hit the ground with?



Ex.) An object has a mass of 450 kg and falls off a cliff. At the bottom of the fall it has a speed of 28.5 m/s. How high is the cliff?

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Ex.) A 30 kg kid is accelerated at 2.5 m/s², what is the force acted upon the kid?



Dec 7-11:14 AM



Ex.) A force of 800 N is acting on a 15 kg box, what is the acceleration of the box?





Ex.) A force of 300 N is required to move an object 3.0 m. What is the work done?

list all variables	formula	substitute (with units) and solve

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Ex.) A force on 250 N moves an object. The work done is 1000 J, how far did it move?

list all variables	formula	substitute (with units) and solve



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Ex.) A crane lifts an object with 4.5×10^5 J and the work done on the object is 3.8×10^4 J. What is the efficiency of the crane?

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First Law of Thermodynamics

- total energy, including heat, in a system and its surroundings remains constant

- heat added to the a system can be transferred to a different form of energy

Dec 10-3:21 PM



Second Law of Thermodynamics

- heat naturally flows from a hot object to a cold object

- no system is 100% efficient(perpetual motion machine), energy is lost, usually due to heat/friction





Dec 10-3:28 PM