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[Electric Potential Energy Worksheet](#)

Electric Potential  
Worksheet

Name: \_\_\_\_\_

- In an electric field, 0.90 joules of work is required to bring 0.45 Coulombs of charge from point A to point B. What is the potential difference between point A and point B?  
 $V = \frac{W}{q} = \frac{0.90}{0.45} = 2V$
- A potential difference of 10.0 Volts exists between two points, A and B, within an electric field. What is the magnitude of charge that requires  $2.0 \times 10^{-3}$  joules of work to move it from A and B?  
 $V = \frac{W}{q} \Rightarrow q = \frac{W}{V} = \frac{2.0 \times 10^{-3}}{10} = 2.0 \times 10^{-4} C$
- How much work is required to move a single electron through a potential difference of 100 volts?  
 $W = qV = (1.6 \times 10^{-19} C)(100V) = 1.6 \times 10^{-17} J$
- Moving 3.0 coulombs of charge a distance of 6.0 meters from point A to point B within an electric field requires a force of 5.0 Newtons.
  - How much work is done by this force to move the charge from point A to point B?  
 $W = Fd = (5N)(6m) = 30J$
  - What is the potential difference between point A and B?  
 $V = \frac{W}{q} = \frac{30J}{3C} = 10V$
- The potential difference across two parallel plates is 10 volts. The plates are separated by a distance of 0.1 meters.
  - What is the strength of the electric field between the plates?  
 $E = \frac{V}{d} = \frac{10V}{0.1m} = 100 \frac{V}{m}$
  - What would be the force on a proton placed between these plates?  
 $F = qE = (1.6 \times 10^{-19} C)(100 \frac{V}{m}) = 1.6 \times 10^{-17} N$
  - What would be the acceleration of the proton?  
 $a = \frac{F}{m} = \frac{1.6 \times 10^{-17} N}{1.67 \times 10^{-27} kg} = 9.59 \times 10^9 \frac{m}{s^2}$
- The potential difference between the plates shown in the diagram below is 100 volts. And they are separated by a distance of 0.02 meters. An electron is placed between the plates and experiences an electric force directed upward.
  - What is the strength of the electric field between the plates?  
 $E = \frac{V}{d} = \frac{100V}{0.02m} = 5000 \frac{V}{m}$
  - What is the magnitude of the force on the electron?  
 $F = qE = (1.6 \times 10^{-19} C)(5000 \frac{V}{m}) = 8.0 \times 10^{-16} N$
  - On the diagram above, sketch the vectors showing the direction of the electric field between the plates.
  - How would you describe the strength of the electric field at all locations between the plates?  
5000  $\frac{V}{m}$  constant

$$W = 9J$$

$$q = 0.45C$$

$$V = ?$$

$$V = 10V$$

$$q = ?$$

$$W = 2.0 \times 10^{-3} J$$

$$V = 10V$$

$$d = 0.1m$$

$$E = \frac{V}{d}$$

$$F = qE$$

$$E = 100 \frac{V}{m}$$

$$F = ?$$

$$q = 1.6 \times 10^{-19} C$$

$$(1.6 \times 10^{-19} C)(100 \frac{V}{m}) = 1.6 \times 10^{-17} N$$

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It is as if the charge is going down an electrical hill where its electric potential energy is converted to kinetic energy. Let us explore the work done on a charge  $q$  .... by PP Urone · 2012 — It is as if the charge is going down an electrical hill where its electric potential energy is converted to kinetic energy. Let us explore the work done on a charge  $q$  .... Jun 21, 2012 — It is as if the charge is going down an electrical hill where its electric potential energy is converted to kinetic energy. Let us explore the work ...

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### electric potential energy worksheet

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Here, gravitational potential energy of the water is converted to electrical energy. motion net force false. Page 7. Name. Class. Date \_\_\_\_\_.

### electric potential energy worksheet with answers pdf

physics 111N. 2 electric potential energy ! consider a uniform electric field (e.g. from parallel plates) ! note the analogy to gravitational force near the surface of .... Oct 6, 2016 — Define the electron-volt; Calculate electric potential and potential difference from potential energy and electric field; Describe systems in which the .... Nov 5, 2020 — ... to review Electricity. Electric potential \_\_\_\_\_ as distance increases. ... The amount of electric potential energy per one coulomb of charge.. Sep 10, 2020 — Read More. Quiz & Worksheet – Electric Potential Difference 1. Questions: wind energy and agriculture – wind power is generated by ...

### electric potential energy and voltage worksheet answers

The electric force concept will be used Electric Field & Electric Potential Energy Worksheet 1) A small positive charge is moved closer to a positively charged .... magnetic field, electric potential energy, equilibrium, indeterminate structures, finding electric field, first law of thermodynamics, fluid statics and dynamics, friction .... Gasoline in a storage tank (b) Potential Energy ... Directions: Use the following forms of energy to fill in the table below: mechanical, electrical, thermal, .... A 2 coulomb charge is moved in an electric field from a voltage of 2 V to one of 10V. How much work does this require? What is the electrical potential energy of .... In this case the golf ball at the start has zero potential energy. ... Forms of Energy Mini-Charts includes forms of energy, mechanical energy, sound energy, electrical energy, circuits, ... pHet Energy Forms & Changes Simulation Worksheet.pdf. worksheets and links to web resources on electric potential and electric potential energy.. (a) Calculate the potential at a point P due to a charge of  $4 \times 10^{-7}$  C located 9 cm ... Find the value of charge Q (in term of q), so that electric potential energy of .... What is the potential difference between A and B (–)? Electric Potential Difference and Charge Sign. • Positive Charge o Moves from. electrical .... Electric Field & Electric Potential Energy Worksheet. 1) A small positive charge is moved closer to a positively charged object. The PE of the small positive.. A loaded spring has potential energy, for example a switchblade. Any thing that moves has kinetic energy, like a blender or washing machine. Electric Potential ... 167bd3b6fa

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