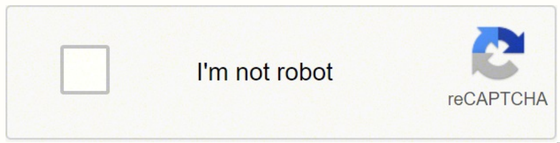

Continue

Physics vector worksheet

Read and download free pdf of CBSE Class 10 Physics Electricity Worksheet. Students and teachers of Class 10 Physics can get free printable Worksheets for Class 10 Physics in PDF format prepared as per the latest syllabus and examination pattern in your schools. Standard 10 students should practice questions and answers given here for Physics in Grade 10 which will help them to improve your knowledge of all important chapters and its topics. Students should also download free pdf of Class 10 Physics Worksheets prepared by school teachers as per the latest NCERT, CBSE, KVS books and syllabus issued this academic year and solve important problems provided here with solutions on daily basis to get more score in school exams and testsElectricity Class 10 Physics Worksheet PdfClass 10 Physics students should refer to the following printable worksheet in Pdf for Electricity in standard 10. This test paper with questions and answers for Grade 10 Physics will be very useful for exams and help you to score good marksClass 10 Physics Worksheet for ElectricityQuestion : Calculate the number of electrons constituting one Coulomb of chargeQuestion : How do we connect voltmeter and ammeter in an electric circuit? What is likely to happen if the positions of these instruments are interchanged?Question : A bulb cannot be used in place of a resistor to verify Ohm's law. Justify this statement with reason.Question : State the type of combination used for connecting different electric appliances in domestic circuit. Give reasons parallelQuestion : Two students perform the experiments on series and parallel combination of two given resistors R1 and R2 and plot the following V-I graphs. Which of the two diagrams correctly represents the labels 'series and parallel' on the plotted curves? Justify your answer.Question : Explain the following:(i) Copper and Aluminum wires are employed for electricity transmission.(ii) Heating devices are made of an alloy rather than a pure metal.(iii) Tungsten is used for filament of electric lamp.Question : Two metallic wires of the same material are connected in parallel. Wire A has length "l" and radius r, wire B has a length 2l and radius 2r. Calculate the ratio of their equivalent resistance in parallel combination and the resistance of wire A.Question : Why are electric bulbs filled with chemically inactive nitrogen or argon?Question : Derive an expression for the equivalent resistance of three resistors R1, R2 and R3 connected in series.Match the correct range of resistivity with the materials given:a) Conductor ---- i) 10-6 Ωmb) Alloys ---- ii) 1012 to 1017Ωmc) Insulators ---- iii) 10-6 to 10-8ΩmQuestion : Derive an expression for Joule's law of heating. Give two examples for applications of heating effect of electric current.Question : A wire of resistivity is stretched to double of its length. Find its new resistance and resistivity. Question : 100J of work is done in transferring 20C of charge between two points in a conductor. Find the resistance offered by the conductor, if a current of 2A flows through it.Question : Calculate the resistance of a metal wire of length 2m and area of cross section 1.55x10-6m2, if the resistivity of the metal be 2.8x10-8Ωm? ()Question : A battery of 12V is connected to a series combination of resistors 3Ω, 4Ω, 5Ω and 12Ω. How much current would flow through the 12Ω resistor?Question : Nichrome wire of length l and radius 'r' has resistance of 10Ω. How would the resitance of the wire change when (i) only the diameter is doubled? (ii) only length of the wire is doubled?Question : Two devices of rating 44W, 220V and 11W.220V are connected in series. The combination is connected across a 440V main. The fuse of which of the two devices is likely to burn when the switch is ON? Justify your answer.Question : A wire of resistance 10Ω is bent in the form of a closed circle. What is the effective resistance between the two points at the ends of any diameter of the circle?Question : Two resistors with resistances 5Ω and 10Ω are to be connected to a battery of 6V so as to obtain:(i) Minimum current(ii) Maximum current. How will you connect the resistances in each case?Question : Two identical resistors are first connected in series and then in parallel to a source of supply. Find the ratio of heat produced in two cases.Question : A torch bulb is rated 5V and 500mA. Calculate its (i) power, (ii) resistance, (iii) energy consumed when it is lighted for 4 hours. (Question : An electric heater rated 880W operates 6h/day. Find the cost of energy to operate it for 30 days at Rs 3.00 per unit.Question : In an electric circuit, the direction of electric current is: a. from the negative terminal to the negative terminal.b. from the positive terminal to the negative terminal.c. from the positive terminal to the positive terminal.d. from the negative terminal to the positive terminal.Explanation: In an electric circuit, the direction of electric current is from the positive terminal of the battery to the negative terminal of the battery. This is as per convention. Electrons were not known at the time when the phenomenon of electricity was first discovered. Electric current was considered to be the flow of positive charges and the direction of flow of positive charges was taken to be the direction of electric current.Question : The use of a plane mirror in the meters is to a. Give brightness to the readingb. Make the meter look goodExplanation: The use of a plane mirror in the meters is to avoid parallax error with our eye. Meters like ammeters and voltmeters use a mirror to avoid parallax error. The reading is taken from a position such that the image of the pointer is directly under the pointer.Question : Two students (A) and (B) connect their two given resistors R1 and R2 in the manners shown below :Student (A) connects the terminal marked (b1) and (c1) while student (B) connects the terminals marked (d2) and (c2) in their respective circuits at the points marked X and Y.Which one of the following is correct in relation to above arrangements? a. Student (A) will determine the equivalent resistance of the series combination while student (B) will determine the equivalent resistance of the parallel combination of the two resistors.b. Both the students will determine the equivalent resistance of the parallel combination of the two resistors.c. Both the students will determine the equivalent resistance of the series combination of the two resistors.d. Student (A) will determine the equivalent resistance of the parallel combination while student (B) will determine the equivalent resistance of the series combination of the two resistors.Explanation: R1 and R2 has one common point in (A) and two common points in (B).Question : Match the following with the correct response: (1) Electric current (A) Ammeter(2) Small deflection in the circuit (B) Battery(3) Maintains potential difference between two points (C) Galvanometer(4) Variable Resistance (D) RheostatExplanation: An Ammeter (from Ampere Meter) is used to measure electric current (flow of electric charge) in an electric circuit. A Galvanometer is an electromechanical instrument for detecting and measuring small electric currents. A Battery maintains potential difference between two points in an electric circuit. A Rheostat is an electrical instrument used to control current in a circuit by varying the resistance.Question : To determine the equivalent resistance of a series combination of two resistors R1 and R2, a student arranges the following set up : Which one of the following statements will be true for this circuit ? It gives :a. correct reading for potential difference V but incorrect reading for current I.b. correct reading for current I but incorrect reading for potential difference V.c. correct readings for both I and Vd. incorrect reading for current I as well as potential difference V.Explanation: Ammeter should not be shunted with voltmeter. Very Short AnswersQuestion : Define resistance. Give its S.I. unit.Answer : Resistance is the property of a conductor to oppose the flow of charges through it. SI unit of resistance is Ohm (Ω). Question : What will happen to the resistivity of a wire of length L if it is cut into three parts?Answer : Resistivity of the wire will not change even when the wire is cut into three parts as resistivity is a characteristic of the material of the conductor and does not depend on the physical dimensions of the conductor.Question : The potential difference across the wire having fixed resistance is tripled. By how much does the electric power increase?Answer : The electric power will increase by nine times when the potential difference across the wire having fixed resistance is tripled. According to Ohm's law, potential difference V is proportional to current, I. Therefore, when V is made 3 times, I will increase 3 times. As Power P = VI, therefore, Power will increase by 9 times.Question : Is electric potential a scalar or a vector quantity ? Answer : Electric potential is a scalar quantity.Question : What causes the potential difference between the two terminals of a cell? Answer : Excess of electrons at the negative terminal and lack of electrons at the positive terminal (due to chemical reactions) causes potential difference between the two terminals of a cell. Short AnswersQuestion : Find the minimum rating of fuse that can be safely used on a line on which two 1.1 KW electric geysers are to run simultaneously.The supply voltage is 220 V.Answer : Power P = VI. As the two geysers have power rating 1.1 kW or 1100 W and are connected in parallel, each geyser draws a current I = P/V =1100/220 A = 5 A. Question : The electric power consumed by a device may be calculated by either of the two expressions P = I2R or P = V2/R. The frist expression indicates that it is directly proportional to R whereas the second expression indicates inverse proportionality. How can the seemingly different dependence of P on R in these expressions be explained? Answer : The expression P = I2R is used for calculating electric power when only current I and resistance R are known, whereas P = V2/R is used for calculating power when voltage V andresistance R are known.Question : Why does the cord of an electric heater does not glow while heating element does? Answer : Heating effect = I2Rtwhere I is the current flowing and R is the resistance and t is the time. Current is same in cord and in heating element. Resistance R of the cord is negligible since it is made of copper (which has very less resistivity) while heating element is made in nichrome whose resistivity is 6,000 times more than copper. Nichrome gets heated up much more than copper.Question : How will the heat produced in a resistor R change if its resistance is reduced to half of its initial value, other parameters of the circuit remain unchanged?Answer : The heat produced in a resistor R is given by Joule's law of heating H = I2Rt, where I is the current and t is the time. When R becomes R/2, I will become 2I according to Ohm's law.Therefore, heat produced = (2I)2(R/2)t = 2H. The heat produced will become double.Question : Why is parallel arrangement used in domestic wiring? Answer : Parallel arrangement is used in domestic wiring due to the following reasons:• Each device will have the same voltage which is equal to the voltage of the supply.• If two or more devices are used at the same time, then each appliance will be able to draw the required current.• If one of the devices fails, then the other keeps working.Question : (A) What is the resistance of a conductor?(B) What happens to the electrical resistance when mercury is cooled to 4.12 k?(C) What name is given to this phenomenon?Answer : (A) The property of a conductor due to which it opposes the flow of current through it is called resistance. The resistance of a conductor is numerically equal to the ratio of potential difference across its ends to the current flowing through it.(B) When mercury is cooled to 4.12 K, the electrical resistance of mercury disappears completely and becomes zero and the mercury becomes super conductor.(C) This phenomenon of loss of electrical resistance of a substance on cooling it to an extremely low temperature is known as superconductivity.Question : Compare the power used in the 2 Ω resistor in each of the following circuits: i. a 6 V battery in series with 1Ω and 2Ω resistors,andii. a 4 V battery in parallel with 12Ω and 2Ω resistors.Answer : Long AnswersQuestion : Answer the following:(A) Why ammeter is always connected in series?(B) give dry cells each of 1.0 volt have internal resistance of 0.2, 0.3, 0.4, 0.5 and 1.2 ohms. When connected in series, what current will these five cells furnish through 10 ohm resistance?Answer : (A) An ammeter is used to measure the current flowing through a circuit. We know that current remains same in series connection. lso the resistance of an ammeter is verysmall due to which it doesn't affect the current to be measured. So, an ammeter is always connected in series to measure current.(B) Total voltage produced by the batteriesV = 5 x 1.5 = 7.5 VTotal resistanceR = R1 + R2 + R3 + R4 + R5R = (0.2 + 0.3 + 0.4 + 0.5 + 1.2) + 10 = 12.6 WTherefore, currentI = V/R = 7.5/12.6 = 0.595 A.Question : For the circuit shown in the given diagram: i. current through 6 resistor?ii. potential difference across 12 resistor?Answer : Let the current through the circuit be I which is divided into I1 and I2 in the arms AB and CD respectively, then we haveIn the arm AB, the total resistance isand the total resistance in the arm CD isi. Then current in the 6Q resistor i.e., Click to View or Download pdf file › Click for more Physics Study Material › Science is inexplicably linked with our lives and helps us to understand the world around us better. Scientific and technological developments contribute to progress and help improve our standards of living. By engaging with this subject, students learn to think, solve... Ministry of Education, Govt of India vide letter No. F.No. 12-5/2020-IS-4 dated 16.12.2021 has intimated that under the banner Azadi ka Amrit Mahotsav the National Yogasanasports Federation has decided to run a project of 750 million Surya Namaskar from 01 January 2022... The acquisition of 21st century competencies of communication, critical and creative thinking and the ability to locate, understand and reflect on various kinds of information has become more crucial for our learners. It is well accepted that Reading Literacy is not... Datesheet for CBSE Board Exams Class 10 (Scroll down for Class 12 Datesheet) Datesheet for CBSE Board Exams Class 12 The Central Institute of Educational Technology (CIET), a constituent unit of National Council of Educational Research and Training (NCERT), is inviting entries for the 26th All India Children's Educational Audio Video Festival (AICEAVF). This festival showcases the... This is with reference to CBSE Notification No. 40/2021 dated 04.05.2021 regarding the Innovation Ambassador program – An online training program for teachers by CBSE in collaboration with Ministry of Education's Innovation Cell (MIC) and AICTE. In view of the current...