assignment 5
kn-prob2838.problem

Due date: Fri Feb 13 11:59:59 pm 2026 (EST)

A car battery is rated at 91.7A hr, meaning that it can supply a 91.7A current for 1 hr before being completely discharged. If you leave your headlights on until the battery is completely dead, how much charge leaves the battery?

You are correct. Your receipt no. is 163-3919

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kn-prob2833a.problem
The electron beam inside a television picture tube is 0.952mm in diameter and carries a current of 444 μA. This electron beam impinges on the inside of the picture tube screen. How many electrons strike the screen each second? (Do not enter units with your answer.)

You are correct. Your receipt no. is 163-8285 What is the current density in the electron beam?

You are correct. Your receipt no. is 163-3260

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sb-prob2705.problem
12. A small sphere that carries a charge of 7.00E-9C is whirled in a circle at the end of an insulating string. The angular velocity of rotation is 118.0rad/s. What average current does this rotating charge represent?

You are correct. Your receipt no. is 163-4890

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sb-prob2721.problem
A wire with a resistance 249.00Ω is lengthened to 1.95 times its original length by being pulled through a small hole. Find the resistance of the wire after it has been stretched.

Tries 0/10

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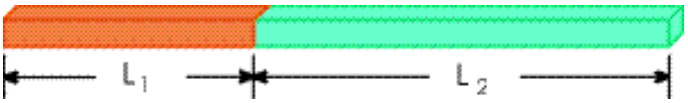
sb-prob2724.problem
The rod in the figure below (not drawn to scale) is made of two materials. Both have a square cross section of 2.79mm on a side. The first material has a resistivity of 4.05E-3ohm$_m$ $and is L_1 = 25.7$cm long, while the second material has a resistivity of 5.81E-3ohm$_m$ $and is L_2$=43.9cm long. What is the resistance between the ends of the rod?

Tries 0/10



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sb-prob2753.problem
15. A high-voltage transmission line with a diameter of 2.00cm and a length of 210km carries a steady current of 1066A. If the conductor is copper wire with a free charge density of 7.90E+28 electrons/m^3, how long does it take one electron to travel the full length of the cable?

Tries 0/10

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sb-prob2758a.problem
An electric utility company supplies a customer's house from the main power lines (115V) with two copper wires, each of which is 46.9m long and has a resistance of 0.105ohm per 292m. Calculate the voltage at the customer's house for a load current of 110A.

Tries 0/10

For this load current, calculate the power that the customer is receiving.

Tries 0/10

Calculate the power lost in the copper wires.

Tries 0/10

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sb-prob2762.problem
The current in a resistor decreases by 3.03A when the potential difference applied across the resistor decreases from 15.0V to 12.00V. Calculate the resistance of the resistor.

Tries 0/10

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sf-prob1730.problem
Suppose that a voltage surge produces 138V for a moment. By what percentage will the output of a 115V, 70W lightbulb increase, assuming its resistance does not change? Do not enter units.

Tries 0/10

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sf-prob1752a.problem
A 46.8g sample of a conducting material is all that is available. The resistivity of the material is measured to be 1.25E-7$\Omega \cdot$m and the density is 6.30g/cm^3. The material is to be shaped into a solid cylindrical wire that has a total resistance of 1.80Ω. What length is required?

Tries 0/10

What must be the diameter of the wire?

Tries 0/10
