



AP[®] Physics B 2001 Scoring Commentary

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Question 1

Sample 1 (Score 15)

The student earned all 15 points. The use of both R and r for the radius in the solutions was not a problem, since there is only one pertinent radius in this question.

Sample 2 (Score 13)

This student lost 2 points in part (b); 1 for including a non-zero tension, and 1 for the incorrect answer.

Question 2

Sample 1 (Score 15)

The student earned all 15 points, with the differences between his/her answers and the scoring guides due simply to differences in rounding.

Sample 2 (Score 11)

The student lost 1 point for the decimal error in the answer to part (a), but full credit was awarded for part (b) where that incorrect answer was used correctly. No credit was earned for part (d).

Question 3

Sample 1 (Score 15)

The student earned all 15 points. The reasoning given in part (a) ii is an example of the symmetry considerations mentioned in the note in the scoring guideline.

Sample 2 (Score 12)

The student's inclusion of the word "vectors" in part (a) ii and the arrows on the figure combine to allow full credit; without these, the equation would not have stood alone as indicating a vector calculation. Part (b) ii clearly does not have a correct vector calculation, and only earns the point for substituting the correct distance.

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Question 4

Sample 1 (Score 15)

The student earned all 15 points. Part (a) gives an example of a verbal description of the process that the “Explain...” statement was meant to elicit.

Sample 2 (Score 13)

In part (a), the student indicated use of data from the graph by circling the point corresponding to the numbers used. The student used an incorrect relationship for part (b) iii and lost those 2 points.

Question 5

Sample 1 (Score 10)

The student earned all 10 points. This illustrates how the description of steps to be followed for part (a) and the measurements to be taken for part (b) were frequently combined and repeated.

Sample 2 (Score 8)

The student lost 2 points in part (a) for having the ammeter and voltmeter connected backwards in the circuit.

Question 6

Sample 1 (Score 10)

The student earned all 10 points, using the methods requiring the simpler numerical calculations.

Sample 2 (Score 9)

Part (e) earned only 1 point, for the correct conversion of temperature to Kelvin.

Question 7

Sample 1 (Score 10)

The student earned all 10 points. Part (e) was written in a logical series of steps that are easy to follow.

Sample 2 (Score 8)

1 point was lost in part (b) for not converting to joules. Part (c) lost 1 point for missing the factor of 3, but (d) got full credit because the solution was completely correct, given the answer obtained in (c).