



2004 AP Physics B Exam Scoring Worksheet

Section 1: Multiple Choice

$$\left[\frac{\text{Number correct (out of 70)}}{\text{Number correct (out of 70)}} - \left(\frac{1}{4} \times \frac{\text{Number wrong}}{\text{Number wrong}} \right) \right] \times 1.2857 = \frac{\text{Weighted Section I Score}}{\text{Weighted Section I Score}}$$

(If less than zero, enter zero.)
(Do not round)

Section II: Free Response

Question 1 $\frac{\text{_____}}{\text{(out of 15)}} \times 1.1250 = \frac{\text{_____}}{\text{(Do not round)}}$

Question 2 $\frac{\text{_____}}{\text{(out of 15)}} \times 1.1250 = \frac{\text{_____}}{\text{(Do not round)}}$

Question 3 $\frac{\text{_____}}{\text{(out of 15)}} \times 1.1250 = \frac{\text{_____}}{\text{(Do not round)}}$

Question 4 $\frac{\text{_____}}{\text{(out of 15)}} \times 1.1250 = \frac{\text{_____}}{\text{(Do not round)}}$

Question 5 $\frac{\text{_____}}{\text{(out of 10)}} \times 1.1250 = \frac{\text{_____}}{\text{(Do not round)}}$

Question 6 $\frac{\text{_____}}{\text{(out of 10)}} \times 1.1250 = \frac{\text{_____}}{\text{(Do not round)}}$

Sum = $\frac{\text{_____}}{\text{Weighted Section II Score}}$
(Do not round)

AP Grade Conversion Chart Physics B	
Composite Score Range*	AP Grade
115–180	5
91–114	4
63–90	3
49–62	2
0–48	1
*Students' scores are weighted according to formulas determined in advance each year by the Development Committee to yield raw composite scores; the Chief Reader is responsible for converting composite scores to the 5-point AP grade scale.	

Composite Score

$$\frac{\text{Weighted Section I Score}}{\text{Weighted Section I Score}} + \frac{\text{Weighted Section II Score}}{\text{Weighted Section II Score}} = \frac{\text{Composite Score}}{\text{Composite Score}}$$

(Round to nearest whole number)

How AP Grades Are Determined

Each of the three Physics exams has two sections. Section I of Physics B consists of 70 multiple-choice questions and has scores ranging from a minimum possible of 0 to a maximum possible of 70 points. Section II of Physics B has 6 essay questions. Each of the first four questions has scores ranging from a minimum possible of 0 to a maximum possible of 15 points, while the possible score range from 0 to 10 for the other two questions.

For each student, the scores on the different parts of the Physics B exam are combined to produce a composite score, which ranges from a minimum possible of 0 to a maximum possible of 180 points. In calculating the composite scores, scores on the different parts are multiplied by weights. The Development Committee determines the weights to lay relative emphases on various skills to mirror emphases placed on those skills in the corresponding college curriculum.

Composite scores are not released to students, schools, or colleges. Instead, the composite scores are converted to AP grades on a 5-point scale, and the AP grades are reported. The process of calculating the composite score and converting it to an AP grade involves a number of steps, which are shown in the Scoring Worksheet and described in detail here.

1. **The score on Section I is calculated.** In calculating the score for Section I, a fraction of the number of wrong answers is subtracted from the number of right answers. With this adjustment to the number of right answers, students are not likely to benefit from random guessing. The value of the fraction is $\frac{1}{4}$ for the five-choice questions in the Physics exams.

The maximum weighted score possible on Section I is 90 points for Physics B, which accounts for 50 percent of the maximum possible composite score.

2. **The score on Section II is calculated.** For the Physics B exam, the weights for questions in Section II are determined so that the first four questions together account for $\frac{3}{4}$ of the maximum possible for Section II score, and the other two questions together account for $\frac{1}{4}$ of the maximum possible Section II score. The weighted scores are summed to yield the total weighted Section II score. The maximum weighted score possible on Section II is 90 points, which accounts for 50 percent of the maximum possible composite score.
3. **The composite score is calculated.** The weighted scores on Section I and Section II are summed to give the composite score.
4. **AP grades are calculated.** The Chief Reader sets the four cut points that divide the composite scores into groups. A variety of information is available to help the Chief Reader determine the score range for each of the exam grades:
 - Statistical information based on test-score equating.
 - College/AP grade comparability studies.
 - The Chief Reader's own observations of the students' free-response answers.
 - The distribution of scores on different parts of the exam.
 - AP grade distributions from the past three years.