



ASCENDER GUIDES



**calculate\_average**



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# Calculate Average

To calculate your student's cycle average for a course, you must know the weighting type used for the course (Percentage, Point, or Multiplier). The weighting type is displayed on your student's [Grades > Cycle Grades](#) page. Click the cycle average to see the detail view for the course.

- **Percent-based** - The category weights will show % (e.g., 90%).
- **Point-based** - Each assignment grade will display the earned points and total points (e.g., 9/10).
- **Multiplier-based** - The category weights will show X (e.g., 2x).

Perform the calculations for the appropriate weighting type for the course. For more information, see the following sections at the end of this page:

- Transfer students
- Dropped assignments
- Rounding numbers
- Missing and incomplete grades

## Percent-based

If the course uses percent-based weighting, the teacher assigns a percentage to each assignment category. Examples of assignment categories are homework, tests, labs, quizzes, etc. The percentages for all categories must total 100%.

### Formula for percent-based:

For each category, take the sum of all points earned for all assignments:

Points Earned 1 + Points Earned 2 + Points Earned 3 = Total Points Earned

**For example:**

The Homework category has three assignments. The student earned a 70/100, 80/100, and 90/95 for those assignments.

$$(70 + 80 + 90) = 240$$

The Test category has two tests. The student earned a 95/100 and 45/50 for those tests.

1.  $(45 + 100) = 145$

The Cycle Exam category has no grades yet.

[Extra credit](#)

If the student has extra credit points, include the extra credit (EC) points in the Total Points Earned.

(Points Earned 1 + Points Earned 2 + Points Earned 3 + EC) = Total Points Earned

**For example:**

The Homework category has three assignments. The student earned a 70/100, 80/100, and 90/95 for those assignments. He also has 10 points of extra credit.

$$(70 + 80 + 90 + 10) = 250$$

For each category, take the sum of all possible points for all assignments:

Possible Points 1 + Possible Points 2 + Possible Points 3 = Total Possible Points

**For example:**

The Homework category has three assignments. The student earned a 70/100, 80/100, and 90/95 for those assignments.

2.  $(100 + 100 + 95) = 295$

The student's Total Possible Points for the Homework category is 295.

The Test category has two tests. The student earned a 45/50 and 100/100 for those tests.

$$(50 + 100) = 150$$

The student's Total Possible Points for the Test category is 150.

For each category, divide the Total Points Earned by the Total Possible Points:

Total Points Earned / Total Possible Points = Category Average

**For example:**

The student's Total Points Earned for the Homework category is 240. The student's Total Possible Points for homework is 295.

3.  $240 / 295 = .814$

The student's Homework Category Average is 81.4.

The student's Total Points Earned for the Test category is 145. The student's Total Possible Points for the Test Category is 150.

$145 / 150 = .967$

The student's Test Category Average is 96.7.

For each category, multiply the Category Average by the Category Weight:

Category Average x Category Weight = Category Value

**For example:**

The weight for the Homework category is 50%.

4.  $81.4 \times 50\% = 40.7$

The weight for the Test category is 40%.

$96.7 \times 40\% = 38.7$

The weight for the Cycle Exam category is 10%, but there is no category average.

Take the sum of all Category Values:

Category Value 1 + Category Value 2 + Category Value 3 = Total

5. **For example:**

Add the category values for the Homework and Test categories. There is no category value for the Cycle Exam category.

$40.7 + 38.7 = 79.4$

Divide the total by the sum of the weights for the categories that have grades, then multiply by 100:

$(\text{Total} / 100) \times 100 = \text{Average}$  (if all categories have grades)

$(\text{Total} / \text{Cat Sum}) \times 100 = \text{Average}$  (if some categories do not yet have grades)

**For example:**

6.

The sum of the weights of the Homework category and Test category is 90. The Cycle Exam category is omitted from the sum because it does not have grades.

The student's Total is 79.4.

$(79.4 / 90) \times 100 = 88.2$

The student's average is 88.

## Point-based

If the course uses point-based weighting, the teacher assigns point values for each assignment category. Examples of assignment categories are homework, tests, labs, quizzes, etc. The point values must equal the total number of points for the cycle. The calculation is based on the total points, not weighting.

### Formula for point-based:

For each category, take the sum of points earned on all assignments.

Points 1 + Points 2 + Points 3 = Category Points

**For example:**

The Homework category has three assignments, each worth 50 points. The student earned a 40, 45, and 50 for those assignments.

$$40 + 45 + 50 = 135$$

The Test category has two tests, each worth 50 points. The student earned a 40 and 50 for those tests.

1.

$$40 + 50 = 90$$

[Extra credit](#)

If the student has an extra credit assignment, add the points for the extra credit (EC) assignment to the Category Points:

Category Points + EC = new Category Points

**For example:**

The student's Homework Category Points is 135. The student was awarded 5 points for a homework extra credit assignment.

$$135 + 5 = 140$$

Take the sum of the points earned in all categories.

Category 1 Points + Category 2 Points + Category 3 Points = Total Points

2. **For example:**

Add the points for the Homework category and the Test category.

$$135 + 90 = 225$$

Divide the Total Points by the Total Possible Points, and multiply by 100.

$(\text{Total Points} / \text{Total Possible Points}) \times 100 = \text{Average}$

**For example:**

3.

The student's total points is 225. The total possible points is 250.

$$(225 / 250) \times 100 = 90$$

The student's average is 90.

## Multiplier-based

If the course uses multiplier-based weighting, the teacher assigns a multiplier number (between 1-9) for each category. For multipliers greater than one, the individual assignment grades are counted multiple times. Multiplier-based weighting is often used in elementary schools.

**Formula for multiplier-based-based:**

1.	Calculate the category actual value:
1a.	<p>For each category, add the sum of the points earned for each assignment:</p> $\text{Points Assignment 1} + \text{Points Assignment 2} + \text{Points Assignment 3} = \text{Actual Category Points}$ <p><b>For example:</b></p> <p>The Homework category has three assignments, each worth 100 points. The student earned a 70, 80, and 90 for those assignments.</p> $70 + 80 + 90 = 240$ <p>The Test category has two tests, each worth 100 points. The student earned a 90 and 100 for those tests.</p> <p>90 + 100 = 190  <a href="#">Extra credit</a>          If the student has an extra credit assignment, add the points for the extra credit (EC) assignment to the Actual Category Points:</p> $\text{Actual Category Points} + \text{EC} = \text{new Actual Category Points}$ <p><b>For example:</b></p> <p>The student's Homework Actual Category Points is 240. The student was awarded 5 points for a homework extra credit assignment.</p> $240 + 5 = 245$
1b.	<p>For each category, multiply the Actual Category Points by the multiplier value (M):</p> $\text{Actual Category Points} \times M = \text{Actual Category Value}$ <p><b>For example:</b></p> <p>The multiplier for the Homework category is 2.</p> $240 \times 2 = 480$ <p>The multiplier for the Test category is 1.</p> $190 \times 1 = 190$
1c.	<p>Add the sum of the actual category values for all categories.</p> $\text{Actual Category Value} + \text{Actual Category Value} = \text{Actual Value Total}$ <p><b>For example:</b></p> <p>Add the actual values for the Homework category and the Test category.</p> $480 + 190 = 670$
2.	Calculate the category possible value:

2a.	<p>For each category, add the sum of the possible points for each assignment:</p> <p>Possible Points Assignment 1 + Possible Points Assignment 2 + Possible Points Assignment 3 = Possible Category Points</p> <p><b>For example:</b></p> <p>The Homework category has three assignments, each worth 100 points.</p> $100 + 100 + 100 = 300$ <p>The Test category has two assignments, each worth 100 points.</p> $100 + 100 = 200$
2b.	<p>For each category, multiply the Possible Category Points by the multiplier value (M):</p> <p>Possible Category Points x M = Possible Category Value</p> <p><b>For example:</b></p> <p>The multiplier for the Homework category is 2.</p> $300 \times 2 = 600$ <p>The multiplier for the Test category is 1.</p> $200 \times 1 = 200$
2c.	<p>Add the sum of the possible category values for all categories.</p> <p>Possible Category Value + Possible Category Value = Actual Value Total</p> <p><b>For example:</b></p> <p>Add the possible values for the Homework category and the Test category.</p> $600 + 200 = 800$
3.	<p>Calculate the average:</p> <p>Divide the actual category value by the possible category value, then multiply by 100.</p> <p>(Actual Value Total / Possible Value) x 100 = Average</p> <p><b>For example:</b></p> <p>The student's value for actual points earned is 670. The value for possible points is 800.</p> $(670 / 800) \times 100 = 83.7$ <p>The student's average is 84.</p>

## Transfer Students

If a student transfers into the course during a cycle, the following calculations are used to determine his working cycle average:

**Formula for transfer student:**

For the transfer grade, multiply the Transfer Average by the Transfer Weight:

Transfer Average x Transfer Weight = Transfer Value

**For example:**

1. The student's Transfer Average is 74.

The student's Transfer Weight is 55%.

$$74 \times 55\% = 40.7$$

The student's Transfer Value is 40.7.

Calculate the average of the student's assignment grades (for the remainder of the cycle) using the steps described above under Percent-based, Point-based, or Multiplier-based.

2. **For example:**

The percent-based example above shows a Working Cycle Average of 87.

Calculate the weight for the Working Cycle Average:

100% - Transfer Weight = Working Cycle Average Weight

**For example:**

3. The student's Transfer Weight is 55%.

$$100\% - 55\% = 45\%$$

The student's Working Cycle Average Weight is 45%.

Calculate the Working Cycle Average Value.

Working Cycle Average x Working Cycle Average Weight = Working Cycle Average Value

**For example:**

4. The student's Working Cycle Average is 87.

The student's Working Cycle Average Weight is 45%.

$$87 \times 45\% = 39.15$$

The student's Working Cycle Average Value is 39.15.

Take the sum of the Transfer Value and the Working Cycle Average Value.

Transfer Value + Working Cycle Average Value = Actual Working Cycle Average

**For example:**

5. The student's Transfer Value is 40.7.

The student's Working Cycle Average Value is 39.5.

$$40.7 + 39.5 = 80.2$$

The student's Actual Working Cycle Average is 80.

If a student transferred from a course that posts letter grades to a course that posts numeric grades and a letter grade is entered for his transfer average, the grade conversion table is used to determine the numeric value.

## Dropped Assignments

For all weighting types, the teacher can specify a number of grades to drop for each category (e.g., drop the two lowest grades). If the teacher specified a number of grades to drop, the dropped grades are figured in when calculating the total points earned.

- If the number of grades entered is greater than the number of grades to drop, the lowest X grades are dropped, where X is the specified number to drop for that category.
- If the number of grades to drop is greater than or equal to the number of grades entered, no grades are dropped.

**WARNING:** If all assignments in a category do not have the same total points value, the calculations for dropping a specified number of assignments for the category may result in an average that is different than expected. If the total points value varies, then the grade with the lowest number of points may not necessarily be the lowest grade.

## Rounding Numbers

When calculating the student's cycle average, be aware of the following details:

- Assignment grades are always whole numbers (i.e., no decimals).
- When a category average is displayed on the student's [Grades > Cycle Grades](#) page or progress report (IPR), it is rounded to the nearest whole number. If the number to the right of the decimal is 5 or greater, the displayed grade is rounded up. If the number to the right of the decimal is less than 5, the displayed grade is rounded down. For example, if the student's category average is 89.5, the IPR and Cycle Grades page will display 90 for the category average. If the student's category average is 90.49, the IPR and Cycle Grades page will display 90 for the category average.

- When calculating the student's cycle average, the category average is *not* rounded. The program uses the entire unrounded number (i.e., 32-bit precision) to calculate the cycle average.

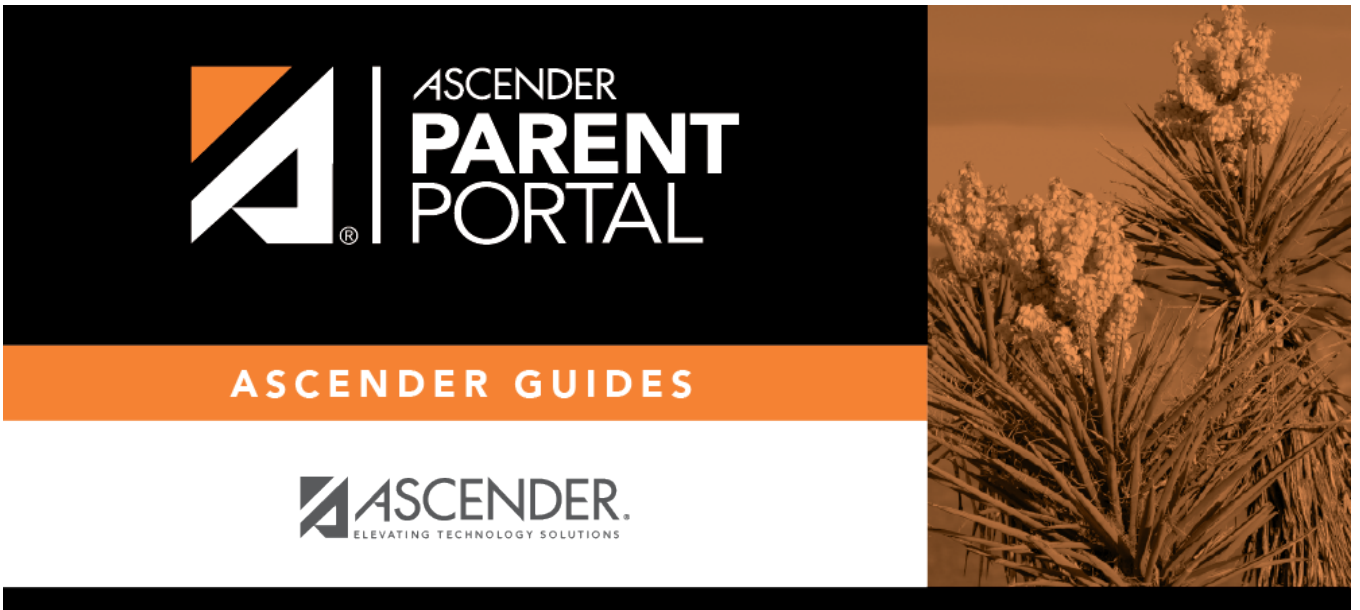
**WARNING:** If you use the rounded category average to calculate the student's cycle average, you may get a different average than the average produced by the program, since the program does not use the rounded category average.

- Once the cycle average is calculated, it is rounded to the nearest whole number. The cycle average is always displayed as a whole number.
- When the semester average is calculated, the rounded cycle averages are used. The semester average is rounded to the nearest whole number. The semester average is always displayed as a whole number.

## Missing and Incomplete Grades

When calculating a student's average, be aware of the following details:

- If a student has an assignment grade of M (missing), the grade is calculated as a zero. A missing grade can be dropped, if applicable.
- At campuses that use skills-referenced grading, a campus-wide option determines how a grade of M is calculated in the student's average:
  - The grade M may be set to equal zero when the student's average is calculated. If a student receives a grade of M, the grade can be changed when the student completes the work.
  - If grade M is not set to equal zero when the student's average is calculated, the grade is bypassed.
- If a student has an assignment grade of I (incomplete), no averages are calculated, and an I is displayed in place of the average. The grade remains as an I until a grade is entered for the assignment.



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