# Demystifying the Final Calculated Grade

**Scenario 1.1:** Points-Based Gradebook - Drop ungraded items

**Scenario 1.2:** Points-Based Gradebook - Treat ungraded items as zero

**Scenario 1.3:** Points-Based Gradebook - Bonus Item

**Scenario 2.1:** Weighted Gradebook - Category distribution:  weight by points

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**Scenario 3.1:** Weighted Gradebook - Bonus Item in category:  distribute weight evenly

**Scenario 3.2:** Weighted Gradebook - Bonus Item in category:  weight by points

**Scenario 3.3:** Weighted Gradebook - Bonus Item not in any category

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**Answers to "Try it" questions:**

**Scenario 2.1**

zzzdemo2: (0.88 x 40 + 0.90 x 50 + 0.93 x 10) / (40 + 50 + 10) = 89.5/100 = 89.5% = 89.5%

**Scenario 2.2**

zzzdemo2: (0.88 x 40 + 0.90 x 50 + 0.93 x 10) / (40 + 50 + 10) = 89.5/100 = 89.5% = 89.5%

**Scenario 3.1**

**Bonus Item increase:**

zzzdemo2: **5/10** x 10/100 x 50/100 = 0.025 = **2.5%**

**The Final Calculated Grade:** (Starting values are from Scenario 2.2)

zzzdemo2: 89.5% + **2.5%** = 92%

**Scenario 3.2**

**Bonus Item increase:**

zzzdemo2: **5/10** x 10/60 (no grade in Exam 2) x 50/100 = 0.04166… = **4.17%**

**The Final Calculated Grade:** (Starting values are from Scenario 2.1)

zzzdemo2: 89.5% + **4.17%** = 93.67%

# Desire2Learn: The Final Calculated Grade

## 1. Points-Based Gradebook

The percentage calculation for a points-based gradebook is:

<u>**Points Earned**</u>
**Points Possible**

Points earned divided by points possible

Example:  40/50  =  0.80  =  80%

**Scenario 1.1:** **The Final Calculated Grade is set to "drop ungraded items"** (ignore items with no grades). The points possible for ungraded items are not included in the base, giving a current grade.

*Settings:*  Points-based, drop the lowest quiz (indicated by ⚠ ), ***drop ungraded items***

| Name ▲ , First Name | Quizzes | | | Exams | | Final | |
|---|---|---|---|---|---|---|---|
| | Q1 ▾ | Q2 ▾ | Q3 ▾ | E1 ▾ | E2 ▾ | Final ▾ | Final Calc Grade |
| ZZZstudent, ZZZdemo1 | 40 / 50 | 30 / 50 ⚠ | - / 50 | 70 / 100 | 80 / 100 | 179 / 200 | 369 / 450, 82 % |
| ZZZstudent, ZZZdemo2 | 50 / 50 | 45 / 50 | 43 / 50 ⚠ | 90 / 100 | 97 / 100 | - / 200 | 282 / 300, 94 % |

**The Final Calculated Grade Percentage:** (dropped grades indicated with a "d")

zzzdemo1:  (40 + d + d + 70 + 80 + 179) / (50 + d + d + 100 + 100 + 200) = 369/450 = 0.82 =  82%

zzzdemo2:  (50 + 45 + d + 90 + 97 + d) / (50 +50 + d + 100 +100 + d) = 282/300 = 0.94 =  94%

**Scenario 1.2:** **The Final Calculated Grade is set to "treat ungraded items as zero"** (zeros are averaged in for all ungraded items).  The points possible are included in the base, giving a growing percent.

*Settings:*  Points-based, drop the lowest quiz (indicated by ⚠ ), ***treat ungraded items as zero***

| Name ▲ , First Name | Quizzes | | | Exams | | Final | |
|---|---|---|---|---|---|---|---|
| | Q1 ▾ | Q2 ▾ | Q3 ▾ | E1 ▾ | E2 ▾ | Final ▾ | Final Calc Grade |
| ZZZstudent, ZZZdemo1 | 40 / 50 | 30 / 50 | 0* / 50 ⚠ | 70 / 100 | 80 / 100 | 179 / 200 | 399 / 500, 79.8 % |
| ZZZstudent, ZZZdemo2 | 50 / 50 | 45 / 50 | 43 / 50 ⚠ | 90 / 100 | 97 / 100 | 0* / 200 | 282 / 500, 56.4 % |

**The Final Calculated Grade Percentage:** (dropped grades indicated with a "d")

zzzdemo1:  (40 + 30 + d + 70 + 80 + 179) / (50 + 50 + d + 100 + 100 + 200) = 399/500 = 0.798 =  79.8%

zzzdemo2:  (50 + 45 + d + 90 + 97 + 0) / (50 +50 + d + 100 +100 + 200) = 282/500 = 0.564 =  56.4%

**Note:**  A current grade displays how well the student is doing for grades entered so far (drop or "ignore" ungraded items).  A growing grade displays the achievement level attained, even if they do not complete any more assignments (treat ungraded items as zero).  A student receiving 100% on all of their assignments will see a percentage that continues to grow as more items are graded.  When they reach 80%, they know they have at least a 3.0, and so on.

**Scenario 1.3:** All Items, Categories, and the Final Calculated Grade are set to *"Can Exceed."* Assigning *extra credit* (points above the max) and *Bonus Items* can make the Final Grade go above 100%. If "Can Exceed" is not checked, then each respective component is limited to no more than 100%.

*Settings:* Points-based, drop the lowest quiz, drop ungraded items, all set to "Can Exceed"

| Name ▲, First Name | Quizzes | | | Exams | | Final | Extra Credit | |
|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | E1 | E2 | Final | Ex (Bonus) | Final Calc Grade |
| ZZZstudent, ZZZdemo1 | 40 / 50 | 30 / 50 ⚠ | - / 50 | 70 / 100 | 80 / 100 | 179 / 200 | 9 / 0 | 378 / 450, 84 % |
| ZZZstudent, ZZZdemo2 | 50 / 50 | 45 / 50 | 43 / 50 ⚠ | 90 / 100 | 97 / 100 | - / 200 | 6 / 0 | 288 / 300, 96 % |

**The Final Calculated Grade Percentage:**

zzzdemo1:   (40 + d + d + 70 + 80 + 179 + 9) / (50 + d + d + 100 + 100 + 200 + 0) = 378/450 = 0.84 = 84%

zzzdemo2:   (50 + 45 + d + 90 + 97 + d + 6) / (50 + 50 + d + 100 + 100 + d + 0) = 288/300 = 0.96 = 96%

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**Student Preview of Grades (zzzdemo1):**

**Tip:** Use Bulk Edit in Manage Grades to check Bonus and Can Exceed settings.

## Final Calculated Grade

**Points**

378 / 450 ▦

**Grade**

84 %

## Grade Items

| Grade Item | Points | Grade |
|---|---|---|
| **Quizzes** | | |
| Quiz 1 | 40 / 50 | 80 % |
| Quiz 2 | 30 / 50 | 60 % |
| | Dropped! | |
| Quiz 3 | - / 50 | -% |
| **Exams** | | |
| Exam 1 | 70 / 100 | 70 % |
| Exam 2 | 80 / 100 | 80 % |
| **Final** | | |
| Final | 179 / 200 | 89.5 % |
| **Extra Credit** | | |
| Extra Credit (Bonus) | 9 / 0 | 90 % |

Enter Grades   **Manage Grades**

New ▾   More Actions ▾

☑ 🖊 Bulk Edit

### Edit Items and Categories

| # | Name* | Short Name | Type | Max Points* | Bonus | Can Exceed |
|---|---|---|---|---|---|---|
| 1 | Quizzes | | | | | ☑ |
| 2 | Quiz 1 | Q1 | Numeric | 50 | ☐ | ☑ |
| 3 | Quiz 2 | Q2 | Numeric | 50 | ☐ | ☑ |
| 4 | Quiz 3 | Q3 | Numeric | 50 | ☐ | ☑ |
| 5 | Exams | | | | | ☑ |
| 6 | Exam 1 | E1 | Numeric | 100 | ☐ | ☑ |
| 7 | Exam 2 | E2 | Numeric | 100 | ☐ | ☑ |
| 8 | Final | | | | | ☑ |
| 9 | Final | | Numeric | 200 | ☐ | ☑ |
| 10 | Extra Credit | | | | | ☑ |
| 11 | Extra Credit | (Bonus) | Numeric | 10 | ☑ | ☑ |
| 12 | Final Calculated Grade | | | | | ☑ |
| 13 | Final Adjusted Grade | | | | | ☑ |

## 2. Weighted Gradebook

The percentage calculation for a weighted gradebook is:

**(Category 1 Average)(Category 1 Wt) + (Category 2 Average)(Category 2 Wt) + . . .**
**Sum of category weights with user grades**

The sum of each category average times its weight, all divided by,
the sum of category weights *with user grades*

Example 1: [(Quiz aver) x 40 + (Exam aver) x 50 + (Final aver) x 10]/100

$$\frac{(0.80) \times 40 + (0.90) \times 50 + (0.95) \times 10}{(40 + 50 + 10)} = \frac{86.5}{100} = 0.865 = 86.5\%$$

Example 2: [(Quiz aver) x 40 + (Exam aver) x 50]/90   [no grades in 10% category]

$$\frac{(0.72) \times 40 + (0.81) \times 50}{(40 + 50)} = \frac{69.3}{90} = 0.77 = 77\%$$

**Scenario 2.1:** Categories are set to *distribute weight by points* across all items in the category. Desire2Learn will automatically calculate the weight of each item in the category relative to the points assigned. Items with more points will have a higher weight and affect the grade more than items with lower points. You are not able to drop the lowest score when the weights are distributed by points.

**Category Distribution:** Weight by points

**Category Average = (Sum of points earned) / (Sum of points possible)**

Total points earned divided by total points possible in the category

| Weight: | Quizzes 40% | | | Exams 50% | | | Final 10% | | Total 100% |
|---|---|---|---|---|---|---|---|---|---|
| **Name ▲, First Name** | ⊟ Quizzes (40) ▾ | | | ⊟ Exams (50) ▾ | | | ⊟ Final (10) ▾ | | F |
| | Q1 ▾ | Q2 ▾ | Subtotal | E1 ▾ | E2 ▾ | Subtotal | Final ▾ | Subtotal | Final Calc Grade ▾ |
| ZZZstudent, demo1 | 47 / 50, 94 % | 45 / 50, 90 % | 36.8 / 40, 92 % | 144 / 150, 96 % | 92 / 100, 92 % | 47.2 / 50, 94.4 % | - / 200, -% | - / 10, -% | 84 / 90, 93.33 % |
| ZZZstudent, demo2 | 45 / 50, 90 % | 43 / 50, 86 % | 35.2 / 40, 88 % | 135 / 150, 90 % | - / 100, -% | 45 / 50, 90 % | 186 / 200, 93 % | 9.3 / 10, 93 % | 89.5 / 100, 89.5 % |

*Settings:* Weighted, distribute weight by points, drop ungraded items

**Category Averages:**
zzzdemo1: Quizzes (47+45)/(50+50)=92/100=**92%**, Exams (144+92)/(150+100)=236/250=0.944=**94.4%**
zzzdemo2: Quizzes (45+43)/(50+50)=88/100=**88%**, Exams 135/150=0.90=**90%**, Final 186/200=0.93=**93%**

**The Final Calculated Grade Percentage:**
zzzdemo1: (0.92 x 40 + 0.944 x 50) / (40 + 50) = 84/90 = 0.9333… = 93.33…% = 93.33%

TRY it!   zzzdemo2:

**Scenario 2.2:** Categories are set to distribute weight evenly across all items in the category. Desire2Learn will automatically distribute the weight evenly among items regardless of the points.

### Category Distribution: Distribute weight evenly

### Category Average = (Sum of item percents) / (Number of items)
The average of the item percents within the category regardless of points

**Weight:**  **Quizzes 40%**  **Exams 50%**  **Final 10%**  **Total 100%**

| t Name ▲, First Name | Quizzes (40) ▾ | | | Exams (50) ▾ | | | Final (10) ▾ | | F |
|---|---|---|---|---|---|---|---|---|---|
| | Q1 ▾ | Q2 ▾ | Subtotal | E1 ▾ | E2 ▾ | Subtotal | Final ▾ | Subtotal | Final Calc Grade ▾ |
| ZZZstudent, demo1 | 47 / 50, 94 % | 45 / 50, 90 % | 36.8 / 40, 92 % | 144 / 150, 96 % | 92 / 100, 92 % | 47 / 50, 94 % | - / 200, -% | - / 10, -% | 83.8 / 90, 93.11 % |
| ZZZstudent, demo2 | 45 / 50, 90 % | 43 / 50, 86 % | 35.2 / 40, 88 % | 135 / 150, 90 % | - / 100, -% | 45 / 50, 90 % | 186 / 200, 93 % | 9.3 / 10, 93 % | 89.5 / 100, 89.5 % |

*Settings:* Weighted, distribute weight evenly, drop ungraded items

**Category Averages:**
zzzdemo1: Quizzes (94% + 90%)/2 = 184%/2 = **92%**, Exams (96% + 92%)/2 = 188%/2 = **94%**
zzzdemo2: Quizzes (90% + 86%)/2 = 176%/2 = **88%**, Exams (90%)/1 = **90%**, Final 93%/1 = **93%**

**The Final Calculated Grade Percentage:**
zzzdemo1: (0.92 x 40 + 0.94 x 50) / (40 + 50) = 83.8/90 = 0.93111... = 93.111...% = 93.11%

**TRY it!**  zzzdemo2:

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**Student Preview of Grades (zzzdemo1):**

**Note:** You must distribute the weight evenly if you want to drop the lowest score(s) in a category.

## Final Calculated Grade

Grade
93.11 %

## Grade Items

| Grade Item | Points | Weight Achieved | Grade |
|---|---|---|---|
| Quizzes (40) | | | |
| Quiz 1 | 47 / 50 | | 94 % |
| Quiz 2 | 45 / 50 | | 90 % |
| Exams (50) | | | |
| Exam 1 | 144 / 150 | | 96 % |
| Exam 2 | 92 / 100 | | 92 % |
| Final (10) | | | |
| Final | - / 200 | | -% |

Edit Category: Exams (50)

Properties   Restrictions

General

Name •
Exams (50)

Grading

Weight
50
☐ Allow category grade to exceed category weight

Distribution
○ Manually assign weight to items in the category
○ Distribute weights by points across all items in the category
● Distribute weight evenly across all items
  0   Number of highest non-bonus items to drop for each user
  0   Number of lowest non-bonus items to drop for each user

## 3. Bonus Items in a Weighted Gradebook

**Scenario 3.1:** **Bonus Item in a category with the weights distributed evenly.** All items, categories, and the final grade are set to *"Can Exceed."* Assigning extra credit and *Bonus Items* can make the Final Grade go above 100%. The overall weight of the Bonus Item is equal to the item weight times the category weight. However, the overall weight of the bonus item will be redistributed if there are any *categories* with no grades.

### Bonus Item in a weighted gradebook category: Distribute weight evenly

$$\text{Percent score x (Item weight)/100 x} \left( \frac{\textbf{Category weight}}{\textbf{Sum of category weights with grades}} \right)$$

Percent score (score out of), times the Bonus Item weight divided by 100 (or percent), times the category weight divided by the sum of category weights with user grades

Example 1:  8/10  x  10/100  x  50/100  =  0.04  =  4%

Example 2:  10/10  x  10/100  x  50/90  =  0.05555... =  5.56%

**Exams Category:** **Bonus Item 10%** **Exams Category 50%** **(overall max % increase: 10% x 50% = 5%)**

| Last Name ▲, First Name | Quizzes (40) | | | Exams (50) | | | | Final (10) | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Subtotal | E1 | E2 | E (Bonus) | Subtotal | Final | Subtotal | Final Calc Grade | |
| ZZZstudent, ZZZdemo1 | 47 / 50 | 45 / 50 | 36.8 / 40, 92 % | 144 / 150 | 92 / 100 | 8 / 10 | 51 / 50, 102 % | - / 200 | - / 10, -% | 87.8 / 90, 97.56 % | |
| ZZZstudent, ZZZdemo2 | 45 / 50 | 43 / 50 | 35.2 / 40, 88 % | 135 / 150 | - / 100 | 5 / 10 | 47.5 / 50, 95 % | 186 / 200 | 9.3 / 10, 93 % | 92 / 100, 92 % | |

*Settings:* Weighted, *distribute weight evenly*, drop ungraded items, all set to "Can Exceed"

**Bonus Item increase:**
zzzdemo1:  **8/10** x 10/100 x 50/90 = 0.04444... = **4.444...%**
zzzdemo2:

**The Final Calculated Grade:** (Starting values are from Scenario 2.2)
zzzdemo1:  93.111...% + **4.444...%** = 97.555...% = 97.56%
zzzdemo2:  89.5% +

**Scenario 3.2:** **Bonus Item in a category with the weight distributed by points.** The overall weight of the Bonus Item will be redistributed if there are ungraded *items* in the category and/or ungraded *categories*.

### Bonus Item in a weighted gradebook category: Weight by points

$$\text{(Percent score) x} \left( \frac{\textbf{Item weight}}{\textbf{Sum of item wts with grades}} \right) \text{x} \left( \frac{\textbf{Category weight}}{\textbf{Sum of category wts with grades}} \right)$$

Percent score of the Bonus Item, times the Bonus Item weight divided by the sum of item weights with grades *in that category*, times the Category weight divided by the sum of category weights with grades

Example 1:  10/10 x 10/*60* x 50/100 = 0.0833... = 8.33%   (ungraded items worth 40%)

Example 2:  10/10 x 10/100 x 50/*90* = 0.0555... = 5.56%   (ungraded category worth 10%)

**Exam 1 weight 60%    Exam 2 weight 40%    Bonus Item weight 10% in Exams Category 50%**

| Last Name ▲ , First Name | Quizzes (40) | | | Exams (50) | | | | Final (10) | | Final Calc Grade |
|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Subtotal | E1 | E2 | E (Bonus) | Subtotal | Final | Subtotal | |
| ZZZstudent, ZZZdemo1 | 47 / 50 | 45 / 50 | 36.8 / 40, 92 % | 144 / 150 | 92 / 100 | 8 / 10 | 51.2 / 50, 102.4 % | - / 200 | - / 10, -% | 88 / 90, 97.78 |
| ZZZstudent, ZZZdemo2 | 45 / 50 | 43 / 50 | 35.2 / 40, 88 % | 135 / 150 | - / 100 | 5 / 10 | 49.17 / 50, 98.33 % | 186 / 200 | 9.3 / 10, 93 % | 93.67 / 100, 93.67 |

*Settings:*  Weighted, **distribute weight by points,** drop ungraded items, all set to "Can Exceed"

**Exam Weight Distribution:**  (item max)/(category total)  Manage Grades displays weight distributions
Exam 1:  150/250 = 0.60 = **60%**,  Exam 2:  100/250 = 0.40 = **40%**,  Bonus Item manually set to **10%**

**Bonus Item increase:**

zzzdemo1:  **8/10** x 10/(60 + 40) x 50/90 = 0.04444… =  **4.444%**

zzzdemo2:

**The Final Calculated Grade:**  (Starting values are from Scenario 2.1)

zzzdemo1:  93.333…% + **4.444…%** = 97.777…% =  97.78%

zzzdemo2:  89.5% +

**Scenario 3.3:  A Bonus Item not in any category.**  If you use a Bonus item with no category, limit its weight to no more than the percent increase you wish to add to the final course percentage.  For example, if you do not want to add more than 5% to any given final grade, limit the Bonus Item's weight to 5.  The points can be any amount as it is the weight that makes the difference in the overall percent.

Bonus Item 5%– Category "None"                                                     Points    Weight

| | | | | Points | Weight |
|---|---|---|---|---|---|
| ☐ | Final (10) ▼ | | | | 10 |
| ☐ | Final ▼ | Numeric | - | 200 | 100 |
| ☐ | Extra Credit Overall ⭐ ▼ | Numeric | - | 20 | 5 |

**Bonus Item in a weighted gradebook:**  no category

$$\text{(Percent score)} \times \left( \frac{\textbf{Bonus Item weight}}{\textbf{Sum of category weights with grades}} \right)$$

Example:  18/20  x  5/100  =  0.045  =  4.5%

| t Name ▲ , First Name | Quizzes (40) | | | Exams (50) | | | | Final (10) | | EC (Bonus) | Final Calc Grade |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Subtotal | E1 | E2 | Subtotal | | Final | Subtotal | | |
| ZZZstudent, demo1 | 47 / 50 | 45 / 50 | 36.8 / 40, 92 % | 144 / 150 | 92 / 100 | 47.2 / 50, 94.4 % | | - / 200 | - / 10, -% | 18 / 20 | 88.5 / 90, 98.33 % |
| ZZZstudent, demo2 | 45 / 50 | 43 / 50 | 35.2 / 40, 88 % | 135 / 150 | - / 100 | 45 / 50, 90 % | | 186 / 200 | 9.3 / 10, 93 % | 15 / 20 | 93.25 / 100, 93.25 % |

*Settings:*  Weighted, **distribute weight by points,** drop ungraded items, all set to "Can Exceed"

**Bonus Item increase**
zzzdemo1:  **18/20**  x  5/90  =  (0.90 x 0.0555…)  =  0.05  =  **5%**
zzzdemo2:  **15/20**  x  5/100  =  (0.75 x 0.05)  =  0.0375  =  **3.75%**

**The Final Calculated Grade** (Starting values are from Scenario 2.1)
zzzdemo1:  93.333…% + **5%** = 98.33…%
zzzdemo2:  89.5% + **3.75%** = 93.25%