

## HOW CANVAS CALCULATES A SUM

The 3 grades in the sample formula below could be a **weighted Group** with 3 grade items or an **entire course** made up of a total of 3 graded Assignments. Canvas calculates a SUM for both of those situations.

*NUM* is a student's grade.

*max* is the highest possible grade for a specific assignment.

*TOTAL* is the sum of all the NUMs.

*MAX* is the sum of all the maxes.

NUM1        out of max1  
+NUM2       out of max2  
+NUM3       out of max3

$$\frac{\text{TOTAL}}{\text{MAX}} = \text{SUM\%}$$

Here's a very simple example:

95    out of 100  
+48   out of 50  
+37   out of 45

$$180 / 195 = 92.3\%$$

Note that neither *max* nor *MAX* have to be 100 or a multiple of 100.

**SUM** is the **percentage value** of the **ratio** of the points the student accumulated divided by the points the student *could have* accumulated.

# HOW CANVAS CALCULATES A WEIGHTED MEAN

In the sample formula below,

*SUM* is a Group total for a weighted Group, calculated per the formula shown in the procedure above *How Canvas Calculates a SUM*. This SUM appears in the Gradebook as a Group Total.

Note that the **Group Total** in the Gradebook appears as a **percentage** and **does not include the weight** of the Group.

*W* is the weight of a Group.

*WSUM* is the total of the 3 weighted SUMs.

*Sum-of-Weights* is the sum of the weights of the 3 groups.

$$(\text{SUM1} * \text{W1}) + (\text{SUM2} * \text{W2}) + (\text{SUM3} * \text{W3}) = \text{WSUM} / \text{Sum-of-Weights} = \text{WFINALGRADE\%}$$

Here's a simple example:

A class has **3 Groups** with weights: homework 20%, exams 50%, final exam 30%.

A student has grades that produce **Group totals**: 90% on homework, 80% on exams, 95% on final Exam.

The calculation is:

$$(90 * .20) + (80 * .5) + (95 * .3) = 18 + 40 + 28.5 = 86.5 / 100 = 86.5\%$$

## IMPORTANT

Note that **dividing by 100** produces the same value that you already had. So, Canvas doesn't divide by the sum of the weights if the sum-of-the-weights is 100 or greater.

This is important since, until every Group has a grade entry, the sum-of-the-weights will be less than 100. Students might see significant grade changes when they complete an assignment in a different Group.

This fact is important in calculating Extra Credit when using weighted Groups. The Extra Credit will not be Extra Credit if it gets factored in before there are grades in all the other Groups.