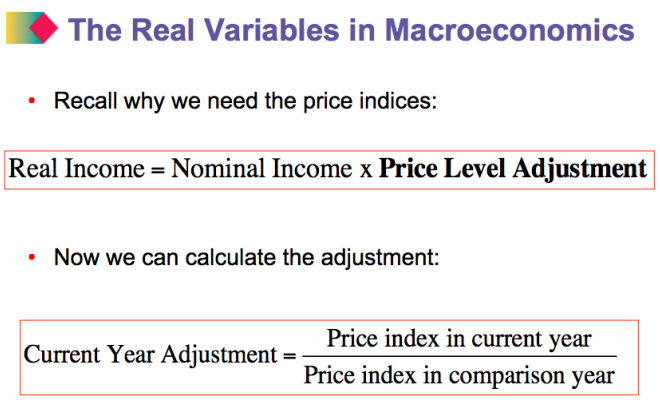
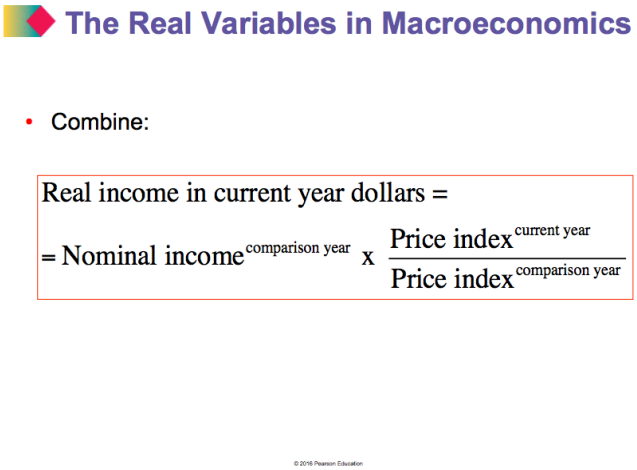
There was a question in class about the formula for calculating real values. The formulas in the lecture notes are correct. You should note that these formulas **are not** for calculating the real income in terms of base year dollars, but for calculating the real income in terms of current year dollars:





Equivalently, you could calculate the real income in terms of comparison year:

$$\text{Real income in comparison year dollars} = \text{Nominal income}^{\text{current year}} \cdot \frac{\text{Price index}^{\text{comparison year}}}{\text{Price index}^{\text{current year}}}$$

The term "comparison" here does not mean "base" – this is an important point. If it is easier, you can abstract from terms "comparison" and "current" and treat it as "year X" and "year Y". Then, it is useful to draw a matrix:

	year X	year Y	← units
year X	w_X		
year Y		w_Y	

To compare value in year X to a value in year Y, you either need to convert everything to year X units or convert everything to year Y units. In other words, you need to calculate one of the missing values in the matrix.
If you want to convert everything to year X units, you would need the missing value in the first column. Notice that for the nominal values the row name matches to the column name.
So, to find the value for year Y in terms of year X (2nd row, 1st column), you would use:

$$w_Y^X = w_Y \cdot \frac{CPI^X}{CPI^Y}$$

And to find the value for year X in terms of year Y (1st row, 2nd column), you would use:

$$w_X^Y = w_X \cdot \frac{CPI^Y}{CPI^X}$$

Now you can compare real values, i.e. compare the values within the same column. So you can compare either w_X to w_Y^X or w_Y to w_X^Y – the conclusion should always be the same.
To further understand this concept, you can think of the following example. You want to compare the height of two people: Kathy, who's height is 62 inches, and Michael, who's height is 170 centimeters. How do you do that? – You either convert Kathy's height to centimeters and compare it to Michael's height **or** convert Michael's

height to inches and then compare it to Kathy's height. No matter which units you use for comparison, inches or centimeters, as long as you compare values that are expressed **in the same units** – Michael will always be taller than Kathy.