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The generic formula for the smoothing process (first order) can be written as:

where is a weight factor that is a value between 0 and 1 to give weight either to the previous value or the projected value.

For our first period of time we have the following smoothed value:

but since we do not have projected value for the time 0 (we can either choose to use or as an estimate of

For the next time period we have the formula as:

and if we plug in we can see that:

which we in turn can rewrite as:

If we continue to plug the values from the previous equation into our new equation we will soon see that we have a more generic formula that is:

We now need to summarize the values of y

Since is a constant value and not affected by the iteration over y we can take this outside the summarization and we are then left with:

Our final step is now to replace the value of with value of and we get the following equation: