Understanding Learning Curve Theory

Learning curve ratio is computed as follows [*expressed in %*]

$$\frac{\boldsymbol{Average\ Labor\ Cost\ for\ First\ 2N\ units}}{\boldsymbol{Average\ Labor\ Cost\ for\ First\ N\ units}}$$

So, it is easy to calculate the average time taken to produce x unit's i.e. for 1, 2, 4, 8, 16, 32... when the required units get doubled by applying Learning curve percentage. But if we want to calculate the average time taken to calculate for 17 units we have to use the following equation.

Learning Curve Equation is

$$\boldsymbol{y = ax^{-b}}$$

Where,

a = the amount of time spent on the first unit produced
b = coefficient, that describes the amount of learning that takes place [log LR/log 2]
c = the total number of units produced
y = the average time taken to produce x units i.e., avg per unit

The above formula is used to know the AVG time per unit taken to produce x units. But to directly calculate the total time taken to produce x units, the following equation is used,

$$\boldsymbol{t = ax^{1-b}}$$

[Go through the illustrations given in study material, which are more than enough to understand the topic]