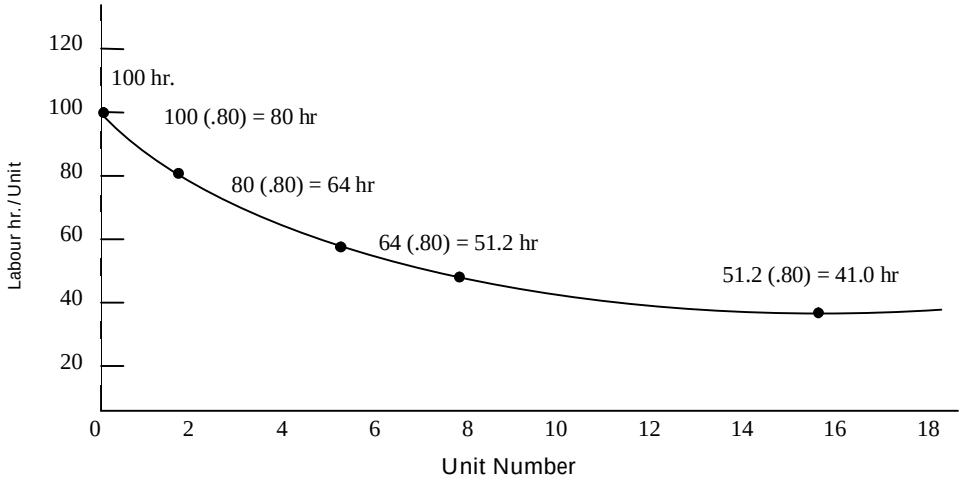
LEARNING CURVE

Learning or improvement curve effects are the reductions. in time per unit to perform specified activities. As the number of repetitions of doing a task increases, improvement results from the development of individual skills, plus other factors such as better organization of work, improved methods, and enhanced work environment. Learning curve information is useful for planning and scheduling work, budgeting costs, negotiating price and delivery of purchased items, and pricing the firm's own products.

The degree of improvement depends upon the task being performed, but is normally expressed in terms of the percentage of time it takes to complete the unit that represents a doubling of output. For example, if an activity followed an 80 percent learning curve and required 100 hours for the first unit, the second would take 80 hours, the fourth 64 hours, and the eighth 51.2 hours.



Mathematically, the number of direct labor hours required to produce the nth unit of a product, Y_n, is exponentially related to the time to produce the first unit, Y_1, by the expression.

Where Y_n = times to produce nth unit
Y_1 = time to produce first unit
N = Unit number

$$b = \frac{\text{Log learning \%}}{\text{Log 2}}, \text{ or } \frac{\text{In learning \%}}{\text{In 2}}$$

Cumulative Average Time per Unit ➔ $a \times X^{b}$