Answer on Question #41074, Economics, Macroeconomics

Q	TPL	APL	MPL
16	8	0,50	-
36	16	0,44	0,40
65	24	0,37	0,28
97	32	0,33	0,25
137	40	0,29	0,20
177	48	0,27	0,20
209	56	0,27	0,25
233	64	0,27	0,33
249	72	0,29	0,50
257	80	0,31	1,00

The average product of labor is the total product of labor divided by the number of units of labor employed, or Q/L. The average product of labor is a common measure of labor productivity. The APL curve is shaped like an inverted "u". At low production levels the APL tends to increases as additional labor is added. The primary reason for the increase is specialization and division of labor. At the point the APL reaches its maximum value APL equals the MPL. Beyond this point the APL falls.

During the early stages of production MPL is greater than APL. When the MPL is above the APL the APL will increase. Eventually the *MPL* reaches it maximum value at the point of diminishing returns. Beyond this point MPL will decrease. However, at the point of diminishing returns the MPL is still above the APL and APL will continue to increase until MPLequals APL. When MPL is below APL, APL will decrease.

Graphically, the *APL* curve can be derived from the total product curve by drawing secants from the origin that intersect (cut) the total product curve. The slope of the secant line equals the average product of labor, where the slope = dQ/dL.The slope of the curve at each intersection marks a point on the average product curve. The slope increases until the line reaches a point of tangency with the total product curve. This point marks the maximum average product of labor. It also marks the point where MPL (which is the slope of the total product curve) equals the APL (the slope of the secant). Beyond this point the slope of the secants become progressively smaller as *APL* declines. The MPLcurve intersects the APL curve from above at the maximum point of the APL curve. Thereafter, the MPL curve is below the APL curve.