

Variable inputs

- Can be changed in the short run to increase or decrease output.
- **Variable cost** is the cost of the variable input.

Fixed inputs

- Cannot be changed in the short run as output increases or decreases.
- **Fixed cost** is the cost of the fixed input.

Short Run

- A key factor of production (usually capital) is fixed in quantity while other inputs (often labor) are variable.

Long Run

- Time period in which all resources are variable.

Total Product (TP)

- The total quantity of output produced by a certain amount of inputs
- $\sum MP$ or $AP \times Q$

Marginal Product (MP)

- The change in the total product resulting from the addition of one unit of a variable input (typically labor)
- $\Delta TP / \Delta L$

Average Product (AP)

- The average quantity of output produced by one unit of a variable input (typically labor)
- TP / L

Production Function: Brittany's Blueberry Factory Dozens of Blueberry Muffins Made Per Day

Labor	Total Product	Average Product	Marginal Product
0	-	-	-
1	40		
2	60		
3	75		
4	84		
5	90		
6	84		

Answers: Dozens of Blueberry Muffins Made Per Day

Labor	Total Product	Average Product	Marginal Product
0	-	=	=
1	40	<u>40</u>	<u>+40</u>
2	60	<u>30</u>	<u>+20</u>
3	75	<u>25</u>	<u>+15</u>
4	84	<u>21</u>	<u>+9</u>
5	90	<u>18</u>	<u>+6</u>
6	84	<u>14</u>	<u>-6</u>