

**FORMULAS**

**Chapter 7**

TP = total product, MPL = marginal product of labor, APL = average product of labor, l = number of workers

$$\text{MPL} = (\text{change in TP}) / (\text{change in l})$$

$$\text{APL} = \text{TP} / l$$

**Accounting cost = out-of-pocket or explicit costs**

**Economic cost = out-of-pocket costs + opportunity cost of inputs used.**

**Chapters 8, 9 and 13**

q = quantity produced, TC = total cost, ATC = average total cost, TFC = total fixed cost

AFC = average variable cost, TVC = total variable cost, AVC = average variable cost, MC = marginal cost

TR = Total Revenue, MR = marginal revenue, P = price

$$\text{TC} = \text{TVC} + \text{TFC} \text{ or } \text{TVC} = \text{TC} - \text{TFC}$$

$$\text{ATC} = \text{TC} / q \text{ or } \text{TC} = \text{ATC} \times q$$

$$\text{AVC} = \text{TVC} / q \text{ or } \text{TVC} = \text{AVC} \times q$$

$$\text{AFC} = \text{TFC} / q \text{ or } \text{TFC} = \text{AFC} \times q$$

$$\text{ATC} = \text{AFC} + \text{AVC}$$

$$\text{MC} = (\text{change in TC}) / (\text{change in } q)$$

$$\text{MC} = (\text{change in TVC}) / (\text{change in } q)$$

$$\text{TR} = P \times q$$

$$\text{MR} = (\text{change in TR}) / (\text{change in } q)$$

$$\text{Profit} = \text{TR} - \text{TC}$$

$$\text{Profit} = (P - \text{ATC}) \times q$$

$$\text{Operating profit (or loss)} = \text{TR} - \text{TVC}$$

**Profit is maximized when MR = MC for all firms**

10)  $MC = (\text{change in TC}) / (\text{change in units produced})$

11)  $MC = (\text{change in TVC}) / (\text{change in units produced})$

12)  $\text{Profit} = TR - TC$

13)  $\text{Profit} = (P - ATC) \times Q = PQ - ATC \times Q$

14)  $\text{Marginal Profit} = (\text{change in TR}) / (\text{change in units produced})$

**FORMULA SHEET FOR CHAPTERS 7 AND 8****Chapter 7**

1) Marginal product of labor = MPL

$$\text{MPL} = (\text{change in total product}) / (\text{change in quantity of labor})$$

2) APL = average product of labor

$$\text{APL} = (\text{Total Product}) / (\text{Quantity of labor})$$

3) Accounting cost = out-of-pocket costs

4) Accounting Profit = Total Revenue – Accounting cost

5) Economic cost = out-of-pocket costs + (opportunity cost of inputs)

6) Economic Profit = Total Revenue – Economic cost

7) Cost of capital = (Price of capital) x (Quantity of capital)

8) Cost of labor = (Price of labor) x (Quantity of labor)

9) Total cost of capital and labor = Cost of capital + Cost of labor

**Chapter 8**

TC= Total Cost, TVC = Total variable cost, TFC = Total Fixed cost

ATC=Average Total Cost, AVC=Average variable cost, AFC=Average Fixed cost

Q = units of output produced, MC = Marginal Cost, MR= marginal revenue

TR = Total revenue, P= Price

10)  $\text{TC} = \text{TFC} + \text{TVC}$

11)  $\text{TFC} = \text{TC} - \text{TVC}$

12)  $\text{ATC} = \text{AVC} + \text{AFC}$

13)  $\text{AFC} = \text{ATC} - \text{AVC}$

14)  $\text{ATC} = \text{TC} / \text{Q}$

15)  $\text{AVC} = \text{TVC} / \text{Q}$

16)  $\text{AFC} = \text{TFC} / \text{Q}$

17)  $\text{TFC} = \text{AFC} \times \text{Q}$

18)  $\text{TVC} = \text{AVC} \times \text{Q}$

19)  $\text{TC} = \text{ATC} \times \text{Q}$