

**EE211 Section 1 Quiz 6****Answers**

Fill in the column of marginal products, total cost in Table 1 and average fixed cost, average variable cost, average total cost, and marginal cost in Table 2.

**Table 1: A production function and total cost: Chloe's Cookie Factory**

| Number of Workers | Output (quantity of cookies produced per hour) | Marginal product of labor | Cost of factory | Cost of workers | Total cost of inputs (cost of factory+cost of workers) |
|-------------------|------------------------------------------------|---------------------------|-----------------|-----------------|--------------------------------------------------------|
| 0                 | 0                                              |                           | \$30            | \$0             | \$30                                                   |
|                   |                                                | 50                        |                 |                 |                                                        |
| 1                 | 50                                             |                           | 30              | 10              | 30+10=40                                               |
|                   |                                                | 90-50=40                  |                 |                 |                                                        |
| 2                 | 90                                             |                           | 30              | 20              | 30+20=50                                               |
|                   |                                                | 120-90=30                 |                 |                 |                                                        |
| 3                 | 120                                            |                           | 30              | 30              | 30+30=60                                               |
|                   |                                                | 140-120=20                |                 |                 |                                                        |
| 4                 | 140                                            |                           | 30              | 40              | 30+40=70                                               |
|                   |                                                | 150-140=10                |                 |                 |                                                        |
| 5                 | 150                                            |                           | 30              | 50              | 30+50=80                                               |
|                   |                                                | 155-150= 5                |                 |                 |                                                        |
| 6                 | 155                                            |                           | 30              | 60              | 30+60=90                                               |

**Table 2: The various Measures of Cost: Caleb's Coffee Shop**

| <b>Output<br/>(cups of<br/>coffee<br/>per<br/>hour)</b> | <b>Total<br/>Cost</b> | <b>Fixed<br/>Cost</b> | <b>Variable<br/>Cost</b> | <b>Average Fixed<br/>Cost</b> | <b>Average<br/>Variable Cost</b> | <b>Average Total<br/>Cost</b> | <b>Marginal<br/>Cost</b> |
|---------------------------------------------------------|-----------------------|-----------------------|--------------------------|-------------------------------|----------------------------------|-------------------------------|--------------------------|
| <b>0</b>                                                | <b>\$3.00</b>         | <b>\$3.00</b>         | <b>\$0.00</b>            | <b>-</b>                      | <b>-</b>                         | <b>-</b>                      |                          |
|                                                         |                       |                       |                          |                               |                                  |                               | <b>\$0.30</b>            |
| <b>1</b>                                                | <b>3.30</b>           | <b>3.00</b>           | <b>0.30</b>              | <b>\$3.00</b>                 | <b>\$0.30</b>                    | <b>\$3.30</b>                 |                          |
|                                                         |                       |                       |                          |                               |                                  |                               | <b>\$0.50</b>            |
| <b>2</b>                                                | <b>3.80</b>           | <b>3.00</b>           | <b>0.80</b>              | <b>\$3.00/2=\$1.50</b>        | <b>\$0.80/2=\$0.40</b>           | <b>\$3.80/2=\$1.90</b>        |                          |
|                                                         |                       |                       |                          |                               |                                  |                               | <b>\$0.70</b>            |
| <b>3</b>                                                | <b>4.50</b>           | <b>3.00</b>           | <b>1.50</b>              | <b>\$3.00/3=\$1.00</b>        | <b>\$1.50/3=\$0.50</b>           | <b>\$4.50/3=\$1.50</b>        |                          |
|                                                         |                       |                       |                          |                               |                                  |                               | <b>\$0.90</b>            |
| <b>4</b>                                                | <b>5.40</b>           | <b>3.00</b>           | <b>2.40</b>              | <b>\$3.00/4=\$0.75</b>        | <b>\$2.40/4=\$0.60</b>           | <b>\$5.40/4=\$1.35</b>        |                          |
|                                                         |                       |                       |                          |                               |                                  |                               | <b>\$1.10</b>            |
| <b>5</b>                                                | <b>6.50</b>           | <b>3.00</b>           | <b>3.50</b>              | <b>\$3.00/5=\$0.6</b>         | <b>\$3.50/5=\$0.70</b>           | <b>\$6.50/5=\$1.30</b>        |                          |
|                                                         |                       |                       |                          |                               |                                  |                               | <b>\$1.30</b>            |
| <b>6</b>                                                | <b>7.80</b>           | <b>3.00</b>           | <b>4.80</b>              | <b>\$3.00/6=\$0.5</b>         | <b>\$4.80/6=\$0.80</b>           | <b>\$7.80/6=\$1.30</b>        |                          |
|                                                         |                       |                       |                          |                               |                                  |                               | <b>\$1.50</b>            |
| <b>7</b>                                                | <b>9.30</b>           | <b>3.00</b>           | <b>6.30</b>              | <b>\$3.00/7=\$0.43</b>        | <b>\$6.30/7=\$0.90</b>           | <b>\$9.30/7=\$1.33</b>        |                          |
|                                                         |                       |                       |                          |                               |                                  |                               | <b>\$1.70</b>            |
| <b>8</b>                                                | <b>11.00</b>          | <b>3.00</b>           | <b>8.00</b>              | <b>\$3.00/8=\$0.375</b>       | <b>\$8.00/8=\$1.00</b>           | <b>\$11.00/8=\$1.375</b>      |                          |
|                                                         |                       |                       |                          |                               |                                  |                               | <b>\$1.90</b>            |
| <b>9</b>                                                | <b>12.90</b>          | <b>3.00</b>           | <b>9.90</b>              | <b>\$3.00/9=\$0.33</b>        | <b>\$9.90/9=\$1.10</b>           | <b>\$12.90/9=\$1.43</b>       |                          |
|                                                         |                       |                       |                          |                               |                                  |                               | <b>\$2.10</b>            |
| <b>10</b>                                               | <b>15.00</b>          | <b>3.00</b>           | <b>12.00</b>             | <b>\$3.00/10=\$0.30</b>       | <b>\$12.00/10=\$1.20</b>         | <b>\$15.00/10=\$1.50</b>      |                          |