## Short-Run Cost Example

### Production Function

<table>
<thead>
<tr>
<th>K</th>
<th>L</th>
<th>Q</th>
<th>TFC</th>
<th>TVC</th>
<th>TC</th>
<th>AFC</th>
<th>AVC</th>
<th>ATC</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0</td>
<td>$200</td>
<td>$0</td>
<td>$200</td>
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<td>$1.33</td>
<td>$14.66</td>
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<td>2</td>
<td>38</td>
<td>$200</td>
<td>$40</td>
<td>$240</td>
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<td>$1.05</td>
<td>$6.31</td>
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<td>$0.95</td>
<td>$4.12</td>
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<td>$280</td>
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<td>$0.95</td>
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<tr>
<td>5</td>
<td>5</td>
<td>100</td>
<td>$200</td>
<td>$100</td>
<td>$300</td>
<td>$2.00</td>
<td>$1.00</td>
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<td>$360</td>
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<td>$1.25</td>
<td>$2.81</td>
</tr>
</tbody>
</table>

### Key

- K = capital
- L = labor
- Q = output
- TFC = total fixed cost
- TVC = total variable cost
- TC = total cost
- AFC = average fixed cost
- AVC = average variable cost
- ATC = average total cost
- MC = marginal cost
- AP_L = average product of labor
- MP_L = marginal product of labor

### Input Prices

- **Price of Capital (P_K)** = $40/UNIT
- **Price of Labor (P_L)** = $20/UNIT

### Cost Formulas

- **TFC** = \( P_k \times K \)
- **TVC** = \( P_l \times L \)
- **TC** = **TFC** + **TVC**
- **AFC** = **TFC**/Q
- **AVC** = **TVC**/Q
- **ATC** = **AFC** + **AVC** = **TC**/Q
- **MC** = \( \Delta TC/\Delta Q = \Delta TVC/\Delta Q \)

### Productivity Measures

- **AP_L**
- **MP_L**