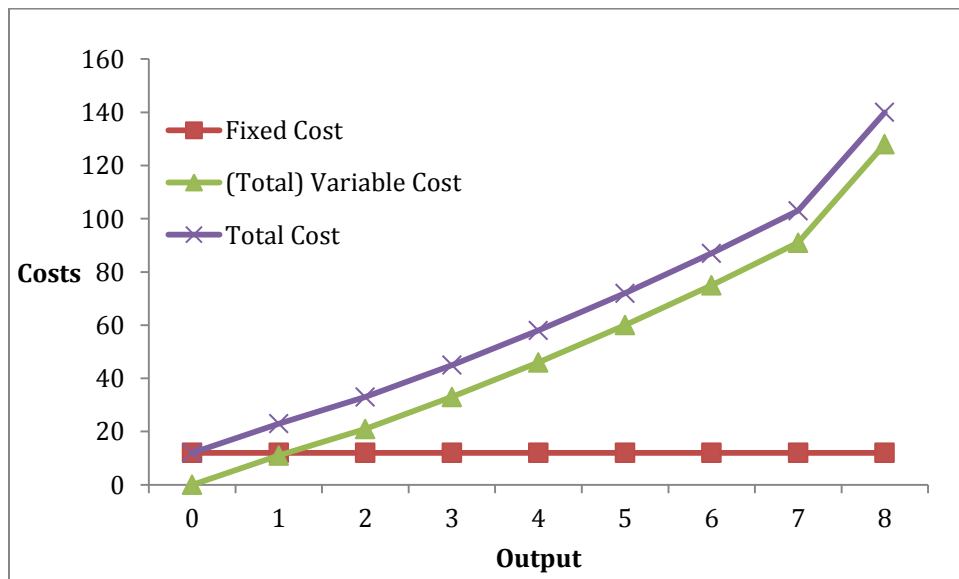


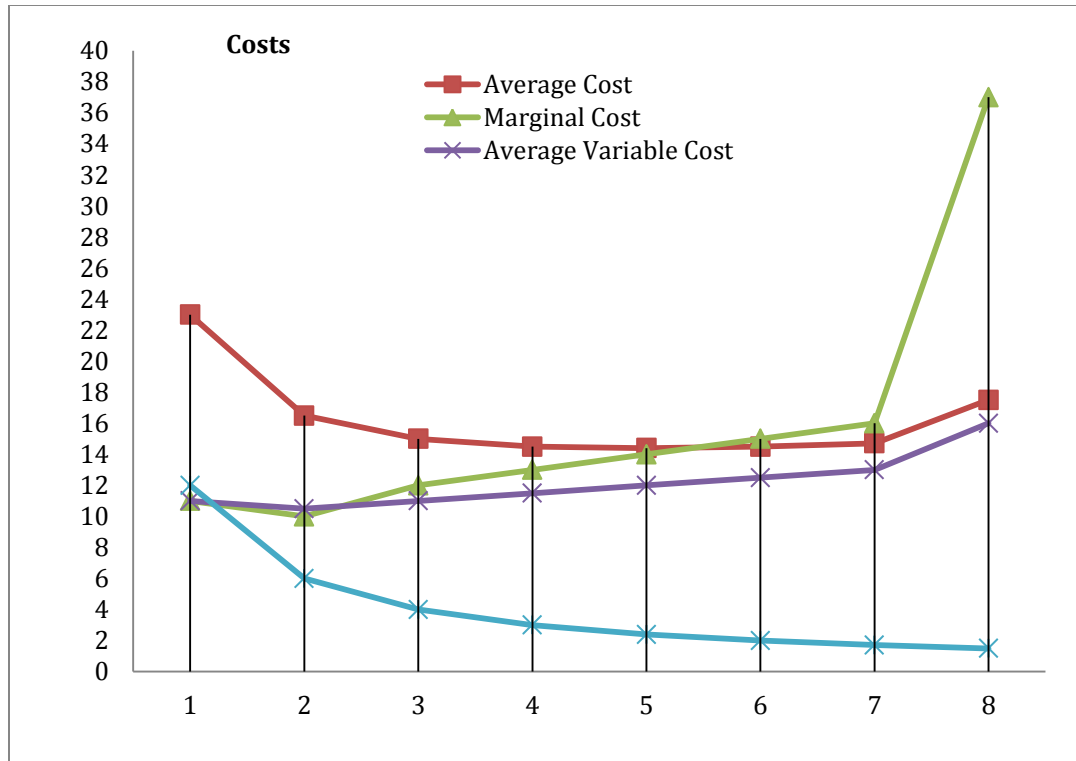
Answer 1:

| Output | Fixed Cost | Total Cost | Average Cost | Marginal Cost | (Total) Variable Cost | Average Variable Cost | Average Fixed Cost |
|----------|------------|--|--------------|-----------------|-----------------------|-----------------------|--------------------|
| (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| | | $TC=TFC+TVC$ or $AC*Q$ or $TC_{-1}+MC$ | $AC=TC/Q$ | $MC=TC-TC_{-1}$ | $TVC=TC-FC$ | $AVC=TVC/Q$ | $AFC=FC/Q$ |
| 0 | 12 | 12 | NA | NA | NA | NA | NA |
| 1 | 12 | 23 | 23.0 | 11 | 11 | 11 | 12 |
| 2 | 12 | 33 | 16.5 | 10 | 21 | 10.5 | 6 |
| 3 | 12 | 45 | 15.0 | 12 | 33 | 11 | 4 |
| 4 | 12 | 58 | 14.5 | 13 | 46 | 11.5 | 3 |
| 5 | 12 | 72 | 14.4 | 14 | 60 | 12 | 2.4 |
| 6 | 12 | 87 | 14.5 | 15 | 75 | 12.5 | 2 |
| 7 | 12 | 103 | 14.7 | 16 | 91 | 13 | 1.7 |
| 8 | 12 | 140 | 17.5 | 37 | 128 | 16 | 1.5 |

- a) Short Run on cost because there is a fixed cost
- b) Profit Maximization condition in SR is $P=MC$. If $P=14$, then $Q=5$ where $MC=P=14$.
- c)



d)



$$AC = AVC + AFC$$

AFC is continuously falls with increase in Q

AC, AVC and MC are U-shaped curves increasing, constant and diminishing returns to product.

Marginal Cost cuts AVC and AC curve at their minimum from below

Ques2:

Fixed cost- the production expenses of the firm that do not vary with output.

Costs of inputs the firm cannot feasibly vary in the short term.

Variable cost- production expenses that change with the quantity of output produced.

Total Cost: Total cost is variable cost plus fixed cost. $TC = VC + FC$

Average Cost: Total cost per unit of output. $(TC)/q$ is average cost

Average Fixed Cost: Total Fixed cost per unit of output. FC/Q

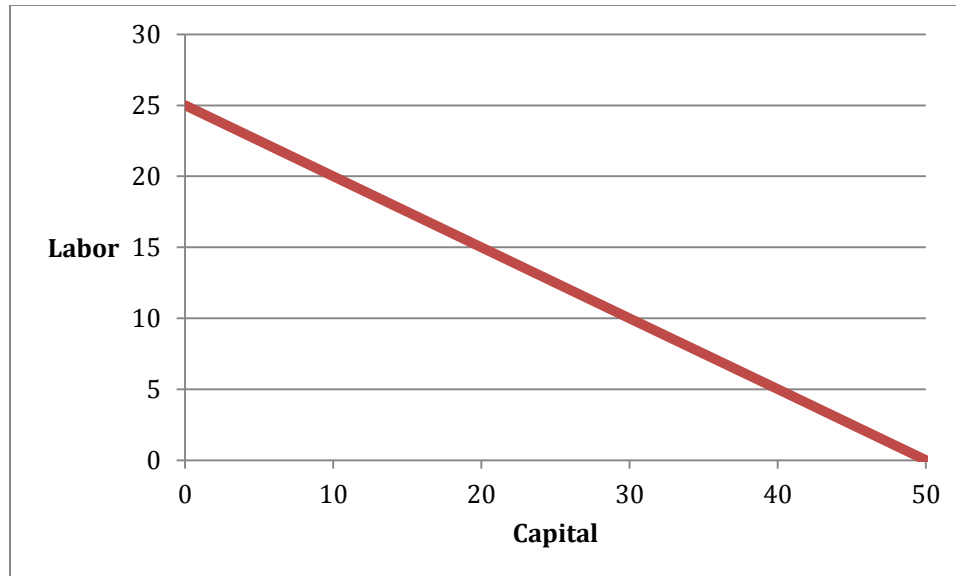
Average Variable Cost: Total Variable cost per unit of output. TVC/Q

Marginal Costs: Addition to the total cost by producing one more unit of output. $MC = \Delta TC / \Delta Q$

In the long run: Since there are no fixed inputs, all costs are variable costs, $TC = TVC$, hence we only have total (variable) cost, average cost and marginal costs

Ques 3

a) $2K + 4L = 100$



- b) $MRTS_{LK} = -w/r = -2$**
c) Use equi-marginal rule. $MP_L/W = MP_K/R$
 $MP_K = (4/4) * 2 = 2$

Ques 4 Variable Costs = 5,000 per day

Fixed costs = 120,000

Number of days worked 30

Shut down point is when $P = MC < AVC$ in the short run

$P < AVC$

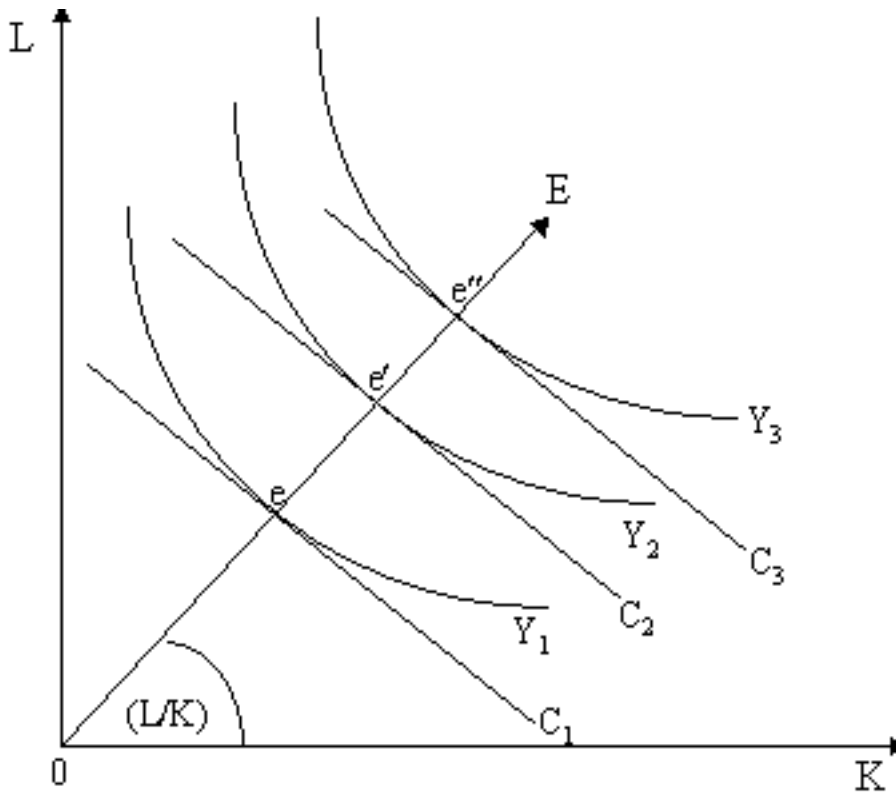
Or $P * Q < AVC * Q$

$TR < TVC$

Thus if the revenue is less than 5,000 per day, the firm should shut down the production

Ques5. Expansion Path: The expansion path traces out the cost minimizing combination of inputs for each output level. If we look at the line traced out by the tangency points, we trace out a line of economic efficiency.

Ques 5b(refer to class notes lecture 8)



source: <http://www.newschool.edu/nssr/het/essays/product/cost.htm>

5c. All points on expansion path are technically efficient as they lie on isoquants and economically efficient as they lie on the isocost lines.

5d. All points on expansion path are profit maximizing points subject to the respective input prices, total cost and production function for that input combination. To choose a specific profit maximizing combination we need to know these values.

Ques 6

a) NNS

If it is technologically efficient it is a necessary but not sufficient for it to be economically efficient. There is no way to be econ. efficient without being tech. efficient first.

b) S,NN (all points on expansion path lie on the isocost line, but so do other economically efficient bundles)

c) N,S if $MC > AC$ then AC must be rising

d) N,NS For Felix to be a cat, he must hate baths, but he could be a small boy who hates baths.

e) N,S If the firm is experiencing increasing returns to scale, then its output more than doubles when its input doubles

f) S,NN if you are in this class, you are taking PPA 723 this fall, However you could be in PPA fall 723 this fall but in another section.