2. The table below shows the output a firm produces using different amounts of capital (K) and labor (L). The markets for capital and labor are perfectly competitive. The rental rate of capital is $75 per unit, and the wage rate is $200 per unit. In the short run, capital is fixed and labor is variable.

Labor	Output with K=1	Output with K=2
0	0	0
1	10	20
2	25	50
3	38	75

(a) If the firm uses one unit of capital and one unit of labor, will it be operating with constant, increasing, or decreasing returns to scale? Explain using numbers from the table.

(b) Assume now that the firm currently has two units of capital and is using three units of labor.

(i) Calculate the marginal product for the third unit of labor. Show your work.

(ii) Did the firm experience diminishing marginal returns with the addition of the third unit of labor? Explain using numbers from the table.

(iii) Calculate the firm's average total cost for its current level of production. Show your work.

(iv) If the firm's output is sold in a competitive market, what is the lowest output price at which the third unit of labor would be hired?