

Chapter 10

Put into practice questions

Page 211

Look at the table on page 211. With which employees do diminishing returns to labour begin?

With 5th employee marginal product is 40 units down from 50 of the 4th employee.

Page 212

If the marginal product is rising what is happening to total product?

Increasing at increasing rate

If the marginal product is falling what is happening to total product?

If marginal product is still positive total product will be increasing at decreasing rate

If the marginal product is 0 what is happening to total product?

No change

If the marginal costs are falling what is happening to total costs?

If still positive total costs will increase at decreasing rate

If the marginal costs are increasing what is happening to total costs?

Increase at increasing rate

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Employees are hired at a wage of £200 each per week. You have four employees producing a total of 400 units.

- **What is the total cost of production?**
(assume labour is the only cost) £800
- **What is the average output per employee?**
100 units
- **What is the average cost of a unit?**
£2 each

You hire a fifth employee and output rises to 450 units.

- **What is the total cost of production?**
£1000
- **What is the marginal product of the fifth worker?**
50 units
- **What is the average output per employee now?**
90 units
- **What is the average cost per unit now?**
£2.22

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Fill in the blank cells in the table on page 218

Marginal cost £4

Average cost £8

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The average cost of ten units is £6. What is the total cost?

Answer is: £60

**The marginal cost of the 11th unit is £17. What is the total cost now? £77
What is the average cost?**

Answer is: £7

What does this show in terms of the relationships between marginal costs and average costs?

A higher marginal cost pulls up the average costs

**The marginal cost of the 12th unit is £7. What is the total cost now? £84
What is the average cost?**

The answer is: £7

What does this show in terms of the relationships between marginal costs and average costs?

If the marginal equal the average the average stays the same

2. Which of the following statements are true and which are false?

- a. The short-run average cost and short-run average variable cost converge as output increases. TRUE

- b. Costs are zero when output is zero. FALSE (fixed costs)
- c. If marginal costs are positive, total costs are increasing. TRUE
- d. If average costs are £25, average fixed costs are £15, and output is 20 units, then variable costs are £200. TRUE

Page 220

Which of the following statements are true? The law of diminishing returns:

- States that, after a point, each additional unit of a variable input adds less to total output than the previous unit; TRUE
- Is only valid in the long run and shows that profits fall as more units of a product are consumed; FALSE
- Shows that total revenue increases as marginal product falls. FALSE

In the short run more variable inputs are added to a given amount of fixed inputs. After some point, which of the following do we expect?

- Marginal cost to fall; FALSE
- Total costs to stop rising and begin falling. FALSE

Which one of the following is not correct?

- $AVC = AFC - AC$; FALSE
- $AC = AVC + AFC$ TRUE
- $AFC = AVC + ATC$ FALSE
- $AFC = AC + AVC$ FALSE

End of chapter put into practice questions

Page 233

Marginal costs of production for each extra unit are £5, £3, £7, £12, £20, and £35. Plot this and then on the diagram below plot the total costs showing the relationship between the marginal and total costs.

Total cost curve would increase by the marginal costs for each unit. As marginal costs are increasing this means total costs increase at a faster rate.

Draw a diagram showing fixed costs, variable costs, and total costs.

Fixed costs will not change with output; variable will. Total costs are fixed plus variable.

Draw a diagram showing average fixed cost, average costs, and marginal costs. Show the effect of an increase in fixed costs.

See figure 10.5. If fixed costs increased these curves would move upwards.

If marginal costs are constant what is the shape of the total cost curve?

Straight line

If marginal costs are increasing what is the shape of the total cost curve?

Increasing at an faster rate

As the number of employees increases from 10 to 50 the average product of labour:

- a. Is constant
- b. Falls then rises
- c. Rises then falls
- d. Falls.

As the number of employees increases from 10 to 50 the average product of labour: Average output is 100, 125, 200, 175, 160. It falls (d).

Complete the following table:

Output Total	costs \$	Marginal costs \$
1	100	N/A
2	170	70
3	200	30
4	280	80
5	390	110