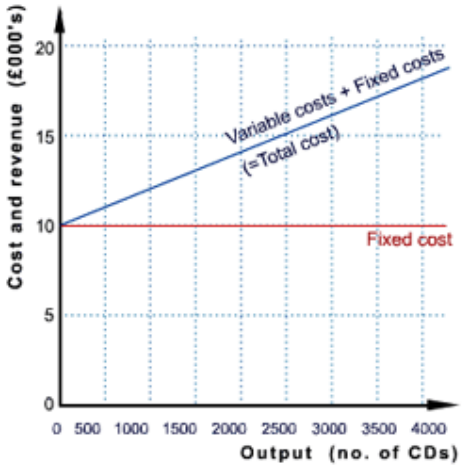
**Breakeven analysis**

The breakeven point for a firm is when total costs equals total revenue. Expenditure and income are the same and the firm makes neither a profit or a loss. If the firm can sell at production levels above this point, it will be making a profit. If sales fall below this point, it will be making a loss. Establishing the breakeven point helps a firm to plan the levels of production it needs to be profitable.
Before you can calculate the breakeven point, you need to separate the firm's costs. These include:
**Fixed costs**
These are constant and do not change however many goods are produced. They include rent and insurance.
**Variable costs**
The firm's variable costs include raw materials and wages. You need to calculate the variable costs per unit. These costs increase in direct proportion to the number of units produced.
**Sales output**
You need to establish how many units are to be produced.
**Sales price**
You need to know the selling price of the units.
Once you have the above information, you can begin to calculate the breakeven point. You do this either by using a chart or an equation.

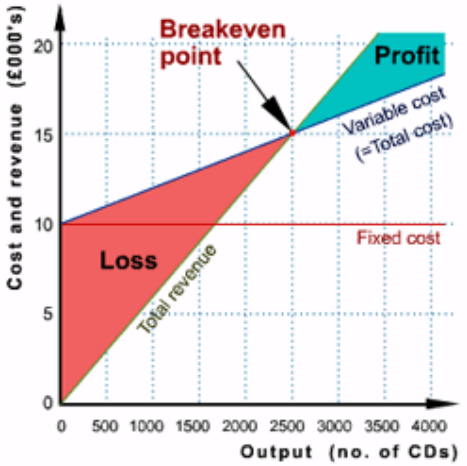
**Breakeven chart**

Here is how to work out the breakeven point, using the example of a firm manufacturing compact discs. You can assume the compact disc firm has the following costs:
**Fixed costs: £10,000**
**Variable costs: £ 2.00 per unit**
You first construct a chart with output (units) on the horizontal (x) axis, and costs and revenue on the vertical (y) axis. On to this, you plot a horizontal fixed costs line (it is horizontal because fixed costs don't change with output).
Then you plot a variable cost line from this point, which will, in effect, be the total costs line. This is because the fixed cost added to the variable cost gives the total cost. To do this, you multiply:
**variable cost per unit x number of units**
In this example of the CD manufacturing firm, you can assume that the variable cost per unit is £2 and there are 2 000 units = £4,000




Once you have done this, you are ready to plot the total revenue line. To do this, you multiply:

**sales price x number of units (output)**
If the sales price is £6.00 and 2.000 items were to be manufactured, the calculation is:
**£6.00 x 2,000 = £12,000 total revenue**
Where the total revenue line crosses the total costs line is the breakeven point (i.e. costs and revenue are the same). Everything below this point is produced at a loss, and everything above it is produced at a profit.




Fixed costs: £10,000, Variable costs: £2 per unit, Sales price: £6 per unit
If you read downwards, it tells you how many units you need to produce and sell at this price to breakeven: 2,500 CDs
If you read across, it tells you how much money you must spend before you recover your outlay: £15,000

**Breakeven calculations**

As with any calculation, it is easy to make a mistake. There are two simple equations you can use to double-check your answer. You can calculate the breakeven point in:
**- units**
**- costs/revenue**
Either way, the result should be the same.

**Calculating in units**

Learn this equation:
Breakeven point in units = $^{\text{Fixed Cost}}/_{\text{(Sales Price - Variable Cost)}}$
So using the CD example:
$^{10,000}/_{(6 - 2)} = {}^{10,000}/_{4}$ =2,500 CDs

**Calculating in costs/revenue**

Learn this equation:
For the breakeven point in costs/revenue, you then multiply the breakeven point in units, which you have just calculated, by the sales price.
**2,500 x 6 = £15,000**
If you look at the breakeven chart, you will see this is the correct answer.
**Remember**
Breakeven analysis is a favourite exam topic. In an exam, you could be asked to complete a breakeven chart. With these two equations, you'll be able to double check your calculations, get them right and improve your marks.