**Applied Maximum and Minimum Problems**

The process of finding maximum or minimum values is called **optimisation**.

We are trying to do things like maximise the profit in a company, or minimise the costs, or find the least amount of material to make a particular object.

These are very important in the world of industry.

**Example 1**

The daily profit, *P*, of an oil refinery is given by
where *x* is the number of barrels of oil refined. How many barrels will give maximum profit and what is the maximum profit?

**Solution**



**Example 2**

A rectangular storage area is to be constructed along the side of a tall building. A security fence is required along the remaining 3 sides of the area. What is the maximum area that can be enclosed with 800 m of fencing?

**Solution**



**Example 3**

A box with a square base has no top. If 64 cm2 of material is used, what is the maximum possible volume for the box?

**Solution**



