# Assignment to 6.2.4.2
## - Solution -

Given are the following data of a product:

$p := 70$          Selling price

$c_v := 8$          Variable cost per unit

$C_f := 6000$          Fixed cost

$x_0 := 100$          Quantity of goods produced and of goods sold

The profit is:

$$R(x_0) := p \cdot x_0 - c_v \cdot x_0 - C_f$$

$$R(x_0) = 200$$

For the quantity $x_1 := 97$ the profit is

$$R(x_1) := p \cdot x_1 - c_v \cdot x_1 - C_f$$

$$R(x_1) = 14$$

The differenc in profit ist

$$\Delta R := R(x_1) - R(x_0)$$

$$\Delta R = -186$$

Generally the difference is

$$\Delta R := (p - c_v) \cdot x_1 - C_f - (p - c_v) \cdot x_0 + C_f$$

$$\Delta R := (p - c_v) \cdot x_1 - (p - c_v) \cdot x_0$$

$$\Delta R := (p - c_v) \cdot (x_1 - x_0)$$

If the difference in quantity is denominated by

$$\Delta x := x_1 - x_0$$

$$\Delta x = -3$$

the differenc in result is

$$\Delta R := (p - c_v) \cdot \Delta x$$

$$\Delta R = -186$$