10^{th} Maths - Chapter 4

This is Problem-6(v) from Exercise 4.2
A cottage industry produces a certain number of pottery articles in a day. It was observed on a particular day that the cost of production of each article (in rupees) was 3 more than twice the number of articles produced on that day. If the total cost of production on that day was ‘ 90, find the number of articles produced and the cost of each article
Given: Let the number of these articles produced in a day be = x.
Cost of each article was 3 more than twice the number of articles produced that be = 3 + 2x
total cost of the production = 90
Solution:
Given: Let the number of these articles produced in a day be = x.
Cost of each article was 3 more than twice the number of articles produced that be = 3 + 2x
total cost of the production = 90

$\big((x)(2x+3)=90\big)$

$\big(2x^2+3x=90\big)$

$\big(2x^2+3x-90=0\big)$

Now we have to factorise it

$\big(2x^2-12x+15x-90\big)$

$\big(2x(x-6)+15(x-6)\big)$

$\big((2x+15)(x-6)\big)$

$\big(x=\frac{-15}{2}\big)$ or $\big(x=6\big)$

Therefore,number of articles produced in the day = 6

Cost of each article: $\big(3+2(6)=15\big)$