## Ncert Solutions Chapter 4 Quadratic Equations Exercise 4.2 Question 6

Question 6. A cottage industry produces a certain number of pottery articles in a day.
It was observed on a particular day that 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 Rs. 90, find the number of articles produced and the cost of each article.

## Solution:

Let cost of production of each article be Rs $x$
We are given total cost of production on that particular day $=R s 90$
Therefore, total number of articles produced that day $=\frac{90}{x}$

According to the given conditions, we have

$$
\begin{aligned}
& x=2\left(\frac{90}{x}\right)+3 \\
& \Rightarrow x=\frac{180}{x}+3 \\
& \Rightarrow x=\left(\frac{180+3 x}{x}\right) \\
& \Rightarrow x^{2}=180+3 x \\
& \Rightarrow x^{2}-3 x-180=0 \\
& \Rightarrow x^{2}-15 x+12 x-180=0 \\
& \Rightarrow x(x-15)+12(x-15)=0 \\
& \Rightarrow(x-15)(x+12)=0 \\
& \Rightarrow x=15,-12
\end{aligned}
$$

Cost cannot be in negative. Therefore, we discard $x=-12$

Therefore, $x=$ Rs 15 which is the cost of production of each article.
Number of articles produced on that particular day $=\frac{90}{x}=\frac{90}{15}=6$

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