1. For finding a root of the function:

\[ f(x) = x^2 - 4x - 12 \]

Do 5 steps of the Newton’s method, \( x_0 = 3 \).

Answer:

\( f_1 \) is \( f'(x) \).

```matlab
clc; format short
f=@(x) x^2-4*x-12;
f1=@(x) 2*x-4;
x=3;  out=[];
for i=1:5
    out=[out;x f(x) f1(x)];
    x=x-f(x)/f1(x);
end
out
x=x
```

Output:

\[
\begin{array}{ccc}
x & f(x) & f'(x) \\
3.0000 & -15.0000 & 2.0000 \\
10.5000 & 56.2500 & 17.0000 \\
7.1912 & 10.9483 & 10.3824 \\
6.1367 & 1.1120 & 8.2733 \\
6.0023 & 0.0181 & 8.0045
\end{array}
\]

\( x = 6.0000 \)

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On-line computer lab: c4
Copy your program and output into the web page.

1. For finding the root of the function:

\[ f(x) = \cos(x) - x \]

Do 5 steps of the Newton’s method, \( x_0 = 1 \).