

Numerical methods with Octave

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Newton's method

The code

```
f = @(x) x^2 - 2;  
df = @(x) 2*x;  
x = 2 % initial guess  
y = f(x)  
while abs(y)>1e-5  
    dy = df(x);  
    x = x - y/dy  
    y = f(x)  
end
```

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    x = x - y/dy  
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end
```

The output

```
x = 2  
y = 2  
x = 1.5000  
y = 0.25000  
x = 1.4167  
y = 0.0069444  
x = 1.4142  
y = 6.0073e-06
```