

Calculus 4 8 Newton's Method. Using Newton's Method for Finding Irrational Zeros.

Lesson 295 | Calculus AB | Newton's method

<https://www.youtube.com/watch?v=xtDqD2kZERo>

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Use two Newton iterations for $f(x)=x^2-11$ from $x_0=6$. Give exact iterates or round only at the end.

02

Use two Newton iterations for $f(x)=x^2-6$ from $x_0=3$. Give exact iterates or round only at the end.

03

Use two Newton iterations for $f(x)=x^2-6$ from $x_0=5$. Give exact iterates or round only at the end.

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04

Use two Newton iterations for $f(x)=x^2-6$ from $x_0=2$. Give exact iterates or round only at the end.

05

Use two Newton iterations for $f(x)=x^2-9$ from $x_0=10$. Give exact iterates or round only at the end.

06

Use two Newton iterations for $f(x)=x^2-7$ from $x_0=14$. Give exact iterates or round only at the end.

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01

Use two Newton iterations for $f(x)=x^2-11$ from $x_0=6$. Give exact iterates or round only at the end.

Iteration $x_{\text{next}}=(x+11/x)/2$. $x_1=47/12$; $x_2=3793/1128$. These are approximations to $\sqrt{11}$, not exact roots.

02

Use two Newton iterations for $f(x)=x^2-6$ from $x_0=3$. Give exact iterates or round only at the end.

Iteration $x_{\text{next}}=(x+6/x)/2$. $x_1=5/2$; $x_2=49/20$. These are approximations to $\sqrt{6}$, not exact roots.

03

Use two Newton iterations for $f(x)=x^2-6$ from $x_0=5$. Give exact iterates or round only at the end.

Iteration $x_{\text{next}}=(x+6/x)/2$. $x_1=31/10$; $x_2=1561/620$. These are approximations to $\sqrt{6}$, not exact roots.

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04

Use two Newton iterations for $f(x)=x^2-6$ from $x_0=2$. Give exact iterates or round only at the end.

Iteration $x_{\text{next}}=(x+6/x)/2$. $x_1=5/2$; $x_2=49/20$. These are approximations to $\sqrt{6}$, not exact roots.

05

Use two Newton iterations for $f(x)=x^2-9$ from $x_0=10$. Give exact iterates or round only at the end.

Iteration $x_{\text{next}}=(x+9/x)/2$. $x_1=109/20$; $x_2=15481/4360$. These are approximations to $\sqrt{9}$, not exact roots.

06

Use two Newton iterations for $f(x)=x^2-7$ from $x_0=14$. Give exact iterates or round only at the end.

Iteration $x_{\text{next}}=(x+7/x)/2$. $x_1=29/4$; $x_2=953/232$. These are approximations to $\sqrt{7}$, not exact roots.