

Newton's Method for Roots

Use the stated positive starting value and Newton update to approximate each indexed radical. Carry full precision between iterations.

1. index 6

Approximate $\sqrt[6]{93}$; $f(x) = x^6 - 93$

Start $x_0 = 2.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

2. index 3

Approximate $\sqrt[3]{498}$; $f(x) = x^3 - 498$

Start $x_0 = 8.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

3. index 5

Approximate $\sqrt[5]{303}$; $f(x) = x^5 - 303$

Start $x_0 = 3.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Newton's Method for Roots

Use the stated positive starting value and Newton update to approximate each indexed radical. Carry full precision between iterations.

4. index 4

Approximate $\sqrt[4]{465}$; $f(x) = x^4 - 465$

Start $x_0 = 5.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

5. index 2

Approximate $\sqrt{381}$; $f(x) = x^2 - 381$

Start $x_0 = 20.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

6. index 6

Approximate $\sqrt[6]{285}$; $f(x) = x^6 - 285$

Start $x_0 = 3.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Newton's Method for Roots

Use the stated positive starting value and Newton update to approximate each indexed radical. Carry full precision between iterations.

7. index 5

Approximate $\sqrt[5]{435}$; $f(x) = x^5 - 435$

Start $x_0 = 3.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

8. index 3

Approximate $\sqrt[3]{60}$; $f(x) = x^3 - 60$

Start $x_0 = 4.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

9. index 4

Approximate $\sqrt[4]{431}$; $f(x) = x^4 - 431$

Start $x_0 = 5.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Newton's Method for Roots

Use the stated positive starting value and Newton update to approximate each indexed radical. Carry full precision between iterations.

10. index 2

Approximate $\sqrt{185}$; $f(x) = x^2 - 185$

Start $x_0 = 14.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

11. index 5

Approximate $\sqrt[5]{340}$; $f(x) = x^5 - 340$

Start $x_0 = 3.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

12. index 6

Approximate $\sqrt[6]{71}$; $f(x) = x^6 - 71$

Start $x_0 = 2.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Newton's Method for Roots

Use the stated positive starting value and Newton update to approximate each indexed radical. Carry full precision between iterations.

13. index 2

Approximate $\sqrt{412}$; $f(x) = x^2 - 412$

Start $x_0 = 20.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

14. index 3

Approximate $\sqrt[3]{22}$; $f(x) = x^3 - 22$

Start $x_0 = 3.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

15. index 4

Approximate $\sqrt[4]{420}$; $f(x) = x^4 - 420$

Start $x_0 = 5.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Newton's Method for Roots

Use the stated positive starting value and Newton update to approximate each indexed radical. Carry full precision between iterations.

16. index 3

Approximate $\sqrt[3]{455}$; $f(x) = x^3 - 455$

Start $x_0 = 8.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

17. index 5

Approximate $\sqrt[5]{308}$; $f(x) = x^5 - 308$

Start $x_0 = 3.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

18. index 6

Approximate $\sqrt[6]{205}$; $f(x) = x^6 - 205$

Start $x_0 = 2.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

Math Sheet

Name _____ Score _____ Teacher _____ Date _____

Newton's Method for Roots

Use the stated positive starting value and Newton update to approximate each indexed radical. Carry full precision between iterations.

19. index 2

Approximate $\sqrt{438}$; $f(x) = x^2 - 438$

Start $x_0 = 21.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

20. index 4

Approximate $\sqrt[4]{136}$; $f(x) = x^4 - 136$

Start $x_0 = 3.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

21. index 5

Approximate $\sqrt[5]{269}$; $f(x) = x^5 - 269$

Start $x_0 = 3.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

Newton's Method for Roots

Use the stated positive starting value and Newton update to approximate each indexed radical. Carry full precision between iterations.

22. index 4

Approximate $\sqrt[4]{382}$; $f(x) = x^4 - 382$

Start $x_0 = 4.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

23. index 2

Approximate $\sqrt{301}$; $f(x) = x^2 - 301$

Start $x_0 = 17.500000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____

24. index 3

Approximate $\sqrt[3]{25}$; $f(x) = x^3 - 25$

Start $x_0 = 3.000000$. Complete 2 Newton iterations using full precision.

Derivative $f'(x)$: _____

i	x_i	$f(x_i)$	$f'(x_i)$	$x_{(i+1)}$
0	_____	_____	_____	_____
1	_____	_____	_____	_____

Nth iterate: _____