Linh Nguyen

B04

ENCM 369 – Computer Organization

Lab 1

Outputs for Ex.G)

Linh Nguyen@Linh-the-Nguyen ~

$ ./a

This program demonstrates use of Newton's Method to find

approximate roots of the polynomial

f(x) = 1.53 + 0.72\*pow(x,1) - 3.07\*pow(x,2) - 1.15\*pow(x,3) + 1.00\*pow(x,4)

Please enter a guess at a root, and a maximum number of

updates to do, separated by a space.

1.0 x

Sorry, I couldn't understand the input.

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Please enter a guess at a root, and a maximum number of

updates to do, separated by a space.

1.0 0

Sorry, I must be allowed do at least one update.

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Please enter a guess at a root, and a maximum number of

updates to do, separated by a space.

1.0 3

Running with initial guess 1.000000.

0 update(s) done; x is 1.000000000000000; f(x) is -9.700000000000000e-01

1 update(s) done; x is 0.800821355236140; f(x) is -4.157587935391005e-02

2 update(s) done; x is 0.791275235572772; f(x) is -1.826627233729727e-04

3 update(s) done; x is 0.791232921288469; f(x) is -3.658500169478884e-09

3 updates performed, |f(x)| still >= 5e-10.

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Please enter a guess at a root, and a maximum number of

updates to do, separated by a space.

1.0 4

Running with initial guess 1.000000.

0 update(s) done; x is 1.000000000000000; f(x) is -9.700000000000000e-01

1 update(s) done; x is 0.800821355236140; f(x) is -4.157587935391005e-02

2 update(s) done; x is 0.791275235572772; f(x) is -1.826627233729727e-04

3 update(s) done; x is 0.791232921288469; f(x) is -3.658500169478884e-09

4 update(s) done; x is 0.791232920440934; f(x) is 0.000000000000000e+00

Stopped with approximate solution of 0.7912329204.

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f(x) = 1.53 + 0.72\*pow(x,1) - 3.07\*pow(x,2) - 1.15\*pow(x,3) + 1.00\*pow(x,4)

Please enter a guess at a root, and a maximum number of

updates to do, separated by a space.

1.5 10

Running with initial guess 1.500000.

0 update(s) done; x is 1.500000000000000; f(x) is -3.116250000000000e+00

1 update(s) done; x is 0.367847411444141; f(x) is 1.340512247680804e+00

2 update(s) done; x is 1.109973935133652; f(x) is -1.507925157255330e+00

3 update(s) done; x is 0.800696981631296; f(x) is -4.103423007402363e-02

4 update(s) done; x is 0.791274160065443; f(x) is -1.780199649994429e-04

5 update(s) done; x is 0.791232921245936; f(x) is -3.474901255628993e-09

6 update(s) done; x is 0.791232920440934; f(x) is 0.000000000000000e+00

Stopped with approximate solution of 0.7912329204.

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This program demonstrates use of Newton's Method to find

approximate roots of the polynomial

f(x) = 1.53 + 0.72\*pow(x,1) - 3.07\*pow(x,2) - 1.15\*pow(x,3) + 1.00\*pow(x,4)

Please enter a guess at a root, and a maximum number of

updates to do, separated by a space.

1.6 10

Running with initial guess 1.600000.

0 update(s) done; x is 1.600000000000000; f(x) is -3.334000000000001e+00

1 update(s) done; x is -0.548195876288664; f(x) is 4.924725934950864e-01

2 update(s) done; x is -0.754237508474334; f(x) is 5.754923301938764e-02

3 update(s) done; x is -0.788654083087434; f(x) is 3.660061117897406e-03

4 update(s) done; x is -0.791170578154929; f(x) is 2.149047628963174e-05

5 update(s) done; x is -0.791185529912146; f(x) is 7.635094778635221e-10

6 update(s) done; x is -0.791185530443387; f(x) is 0.000000000000000e+00

Stopped with approximate solution of -0.7911855304.

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approximate roots of the polynomial

f(x) = 1.53 + 0.72\*pow(x,1) - 3.07\*pow(x,2) - 1.15\*pow(x,3) + 1.00\*pow(x,4)

Please enter a guess at a root, and a maximum number of

updates to do, separated by a space.

-4.3 10

Running with initial guess -4.300000.

0 update(s) done; x is -4.300000000000000; f(x) is 3.749828499999999e+02

1 update(s) done; x is -3.242806455659980; f(x) is 1.167093962775437e+02

2 update(s) done; x is -2.475240995849193; f(x) is 3.591654762898933e+01

3 update(s) done; x is -1.930067474535203; f(x) is 1.084921193165102e+01

4 update(s) done; x is -1.556477598103377; f(x) is 3.177356177034949e+00

5 update(s) done; x is -1.315116131672365; f(x) is 8.804468660152244e-01

6 update(s) done; x is -1.174698474102688; f(x) is 2.161766738635822e-01

7 update(s) done; x is -1.109427868579408; f(x) is 3.785112307947980e-02

8 update(s) done; x is -1.092037417329972; f(x) is 2.433224231518150e-03

9 update(s) done; x is -1.090755687703621; f(x) is 1.288921091591178e-05

10 update(s) done; x is -1.090748825491510; f(x) is 3.687883332048614e-10

Stopped with approximate solution of -1.0907488255.

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Please enter a guess at a root, and a maximum number of

updates to do, separated by a space.

-4.4 10

Running with initial guess -4.400000.

0 update(s) done; x is -4.400000000000000; f(x) is 4.116980000000001e+02

1 update(s) done; x is -3.315990858153937; f(x) is 1.282241611098823e+02

2 update(s) done; x is -2.527904268181999; f(x) is 3.950479852099284e+01

3 update(s) done; x is -1.966927637680202; f(x) is 1.195533665022875e+01

4 update(s) done; x is -1.581135617677099; f(x) is 3.512309178983047e+00

5 update(s) done; x is -1.330401175230197; f(x) is 9.790773224575416e-01

6 update(s) done; x is -1.182878457334881; f(x) is 2.438917918472565e-01

7 update(s) done; x is -1.112485369900058; f(x) is 4.458219491519966e-02

8 update(s) done; x is -1.092461878919673; f(x) is 3.240433617291760e-03

9 update(s) done; x is -1.090760918007155; f(x) is 2.271344171589362e-05

10 update(s) done; x is -1.090748825904858; f(x) is 1.145129768787001e-09

10 updates performed, |f(x)| still >= 5e-10.