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COSC 117

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Homework 5 logic and questions

1. WANT: Unit conversions to and from…. A bunch of different values

HOW: Declare stuff give instructions with error checking. Convert all to one format (thanks for that by the way) nest a bunch of case statements together and make sure to error check

NEED: User input for the number and units

Output:

-1

Input a length as <length> <units>, for example, 23.4 ft

The <units> can be: in, ft, yd, mi, mm, cm, m, or km.

Do not use a . at the end of the units, so 23.4 feet is 23.4 ft

Length: 23 km

Input the units to be converted to: in, ft, yd, mi, mm, cm, m, or km.

New Units: yd

23.00000 km = 25153.11944 yd

-2

Input a length as <length> <units>, for example, 23.4 ft

The <units> can be: in, ft, yd, mi, mm, cm, m, or km.

Do not use a . at the end of the units, so 23.4 feet is 23.4 ft

Length: rast34w

Bad input please try again...

Length: 45 mm

Input the units to be converted to: in, ft, yd, mi, mm, cm, m, or km.

New Units: 908g

Bad input try again

New Units: in

45.00000 mm = 1.77165 in

-3

Input a length as <length> <units>, for example, 23.4 ft

The <units> can be: in, ft, yd, mi, mm, cm, m, or km.

Do not use a . at the end of the units, so 23.4 feet is 23.4 ft

Length: 87 mi

Input the units to be converted to: in, ft, yd, mi, mm, cm, m, or km.

New Units: r

Bad input try again

New Units: cm

87.00000 mi = 14001285.23931 cm

1. WANT: Approximation to a root (I don’t know some math stuff)

HOW: Use the math formulas and stuff you gave me (again wayyy more of a programmer than a mathematician) use conditionals to make for the if the signs are the same/logic. Call your method a bunch of times for the function use a do while to get the number

NEED:

User input for the upper and lower bounds

Output

-1

Input Initial Lower Bound: 5

Input Initial Upper Bound: 8

Input Tolerance on Approximation: 0.0006

Approximation to a root at: 5.49786376953125

-2

Input Initial Lower Bound: 2

Input Initial Upper Bound: 19

Input Tolerance on Approximation: 8

There is no root between 2.0 and 19.0.

-3

Input Initial Lower Bound: 2

Input Initial Upper Bound: 78

Input Tolerance on Approximation: 0.00007

Approximation to a root at: 52.621663093566895

1. WANT: Loan and monthly payments interest rate total costs all that

HOW: Get user input then do the math equations and all that stuff you gave me. Then put it in a for loop and do it all for the number of months, align all the stuff using printf of course. Fix that weird -0 thing that happens (I remember that from last time I took 117 as well). Print out the rest and done

NEED: User input for the amount interest rate years all that stuff

Output

-1

Input the amount for the loan: 65333

Input the number of years for the loan: 6

Input the interest rate(5% - 0.05): 0.03

Your monthly payment is 992.65

Month Balance Interest Total Int.

0 65333.00 0.00 0.00

1 64503.68 163.33 163.33

2 63672.29 161.26 324.59

3 62838.83 159.18 483.77

4 62003.28 157.10 640.87

5 61165.64 155.01 795.88

6 60325.90 152.91 948.79

7 59484.07 150.81 1099.61

8 58640.13 148.71 1248.32

9 57794.08 146.60 1394.92

10 56945.92 144.49 1539.40

11 56095.63 142.36 1681.77

12 55243.23 140.24 1822.01

13 54388.68 138.11 1960.11

14 53532.01 135.97 2096.09

15 52673.19 133.83 2229.92

16 51812.22 131.68 2361.60

17 50949.11 129.53 2491.13

18 50083.83 127.37 2618.50

19 49216.39 125.21 2743.71

20 48346.78 123.04 2866.75

21 47475.00 120.87 2987.62

22 46601.04 118.69 3106.31

23 45724.90 116.50 3222.81

24 44846.56 114.31 3337.12

25 43966.03 112.12 3449.24

26 43083.29 109.92 3559.15

27 42198.35 107.71 3666.86

28 41311.20 105.50 3772.36

29 40421.83 103.28 3875.64

30 39530.24 101.05 3976.69

31 38636.41 98.83 4075.52

32 37740.36 96.59 4172.11

33 36842.06 94.35 4266.46

34 35941.52 92.11 4358.56

35 35038.72 89.85 4448.42

36 34133.67 87.60 4536.01

37 33226.36 85.33 4621.35

38 32316.77 83.07 4704.41

39 31404.92 80.79 4785.21

40 30490.78 78.51 4863.72

41 29574.36 76.23 4939.94

42 28655.65 73.94 5013.88

43 27734.64 71.64 5085.52

44 26811.33 69.34 5154.86

45 25885.71 67.03 5221.88

46 24957.77 64.71 5286.60

47 24027.52 62.39 5348.99

48 23094.94 60.07 5409.06

49 22160.03 57.74 5466.80

50 21222.78 55.40 5522.20

51 20283.19 53.06 5575.26

52 19341.25 50.71 5625.96

53 18396.95 48.35 5674.32

54 17450.30 45.99 5720.31

55 16501.27 43.63 5763.94

56 15549.88 41.25 5805.19

57 14596.10 38.87 5844.06

58 13639.95 36.49 5880.55

59 12681.40 34.10 5914.65

60 11720.45 31.70 5946.36

61 10757.10 29.30 5975.66

62 9791.35 26.89 6002.55

63 8823.18 24.48 6027.03

64 7852.59 22.06 6049.09

65 6879.57 19.63 6068.72

66 5904.12 17.20 6085.92

67 4926.23 14.76 6100.68

68 3945.90 12.32 6112.99

69 2963.12 9.86 6122.86

70 1977.88 7.41 6130.27

71 990.17 4.94 6135.21

72 0.00 2.48 6137.69

Your loan amount was 65333.00.

Your loan duration was 72.00 months.

Your loan monthly payment was 992.65.

Your total interest was 6137.69.

Your total cost is 71470.69.

-2

Input the amount for the loan: 34055

Input the number of years for the loan: 3

Input the interest rate(5% - 0.05): 0.02

Your monthly payment is 975.42

Month Balance Interest Total Int.

0 34055.00 0.00 0.00

1 33136.34 56.76 56.76

2 32216.14 55.23 111.99

3 31294.41 53.69 165.68

4 30371.14 52.16 217.84

5 29446.34 50.62 268.46

6 28519.99 49.08 317.53

7 27592.10 47.53 365.07

8 26662.67 45.99 411.05

9 25731.68 44.44 455.49

10 24799.15 42.89 498.38

11 23865.06 41.33 539.71

12 22929.41 39.78 579.48

13 21992.20 38.22 617.70

14 21053.43 36.65 654.35

15 20113.10 35.09 689.44

16 19171.20 33.52 722.96

17 18227.72 31.95 754.92

18 17282.68 30.38 785.30

19 16336.06 28.80 814.10

20 15387.87 27.23 841.33

21 14438.09 25.65 866.97

22 13486.73 24.06 891.04

23 12533.78 22.48 913.51

24 11579.25 20.89 934.40

25 10623.13 19.30 953.70

26 9665.41 17.71 971.41

27 8706.10 16.11 987.52

28 7745.18 14.51 1002.03

29 6782.67 12.91 1014.94

30 5818.55 11.30 1026.24

31 4852.82 9.70 1035.94

32 3885.49 8.09 1044.03

33 2916.54 6.48 1050.50

34 1945.98 4.86 1055.36

35 973.80 3.24 1058.61

36 0.00 1.62 1060.23

Your loan amount was 34055.00.

Your loan duration was 36.00 months.

Your loan monthly payment was 975.42.

Your total interest was 1060.23.

Your total cost is 35115.23.

-3

Input the amount for the loan: 763433

Input the number of years for the loan: 6

Input the interest rate(5% - 0.05): 0.06

Your monthly payment is 12652.29

Month Balance Interest Total Int.

0 763433.00 0.00 0.00

1 754597.88 3817.17 3817.17

2 745718.58 3772.99 7590.15

3 736794.88 3728.59 11318.75

4 727826.56 3683.97 15002.72

5 718813.41 3639.13 18641.85

6 709755.18 3594.07 22235.92

7 700651.67 3548.78 25784.70

8 691502.64 3503.26 29287.96

9 682307.86 3457.51 32745.47

10 673067.11 3411.54 36157.01

11 663780.16 3365.34 39522.34

12 654446.77 3318.90 42841.24

13 645066.71 3272.23 46113.48

14 635639.76 3225.33 49338.81

15 626165.67 3178.20 52517.01

16 616644.21 3130.83 55647.84

17 607075.14 3083.22 58731.06

18 597458.22 3035.38 61766.44

19 587793.23 2987.29 64753.73

20 578079.90 2938.97 67692.69

21 568318.01 2890.40 70583.09

22 558507.31 2841.59 73424.68

23 548647.56 2792.54 76217.22

24 538738.51 2743.24 78960.46

25 528779.91 2693.69 81654.15

26 518771.52 2643.90 84298.05

27 508713.09 2593.86 86891.91

28 498604.37 2543.57 89435.47

29 488445.10 2493.02 91928.49

30 478235.03 2442.23 94370.72

31 467973.92 2391.18 96761.89

32 457661.50 2339.87 99101.76

33 447297.52 2288.31 101390.07

34 436881.72 2236.49 103626.56

35 426413.83 2184.41 105810.97

36 415893.61 2132.07 107943.04

37 405320.79 2079.47 110022.51

38 394695.11 2026.60 112049.11

39 384016.29 1973.48 114022.58

40 373284.09 1920.08 115942.67

41 362498.22 1866.42 117809.09

42 351658.42 1812.49 119621.58

43 340764.42 1758.29 121379.87

44 329815.95 1703.82 123083.69

45 318812.74 1649.08 124732.77

46 307754.52 1594.06 126326.84

47 296641.00 1538.77 127865.61

48 285471.92 1483.21 129348.81

49 274246.99 1427.36 130776.17

50 262965.93 1371.23 132147.41

51 251628.47 1314.83 133462.24

52 240234.32 1258.14 134720.38

53 228783.21 1201.17 135921.55

54 217274.83 1143.92 137065.47

55 205708.92 1086.37 138151.84

56 194085.17 1028.54 139180.39

57 182403.31 970.43 140150.81

58 170663.04 912.02 141062.83

59 158864.06 853.32 141916.14

60 147006.09 794.32 142710.46

61 135088.83 735.03 143445.49

62 123111.99 675.44 144120.94

63 111075.26 615.56 144736.50

64 98978.35 555.38 145291.87

65 86820.95 494.89 145786.77

66 74602.76 434.10 146220.87

67 62323.49 373.01 146593.88

68 49982.81 311.62 146905.50

69 37580.44 249.91 147155.42

70 25116.05 187.90 147343.32

71 12589.34 125.58 147468.90

72 0.00 62.95 147531.85

Your loan amount was 763433.00.

Your loan duration was 72.00 months.

Your loan monthly payment was 12652.29.

Your total interest was 147531.85.

Your total cost is 910964.85.

5-3 Questions

A

monthly payment was 374.68.

total interest was 2480.92.

total cost is 22480.92.

B

monthly payment was 457.87.

total interest was 1977.90.

total cost is 21977.90.

mp difference 83.19

ti difference 503.02

C

monthly payment was 954.83.

total interest was 143739.01.

total cost is 343739.01.

D

monthly payment was 1211.96.

total interest was 90870.56.

total cost is 290870.56.

mp difference 257.13

ti difference 52868.45