downrightmike

Sample Test Plan for Monthly Loans Payments Calculator

Input

startingAIR

endingAIR

rateIncrement

firstTerm

lastTerm

incrementYears

principal

Calculated intermediate values

numberOfIterations

mir

rateCounter

mtp

annuityFactorNumerator

annuityFactorDenominator

annuityFactor

rateThisLoop

Program output

Greet

Bye

Payment schedule:

Interest

Rate 15 Years 20 Years 25 Years 30 Years 35 Years 40 Years 45 Years

4.00 739.69 605.98 527.84 477.42 442.77 417.94 399.58

Would you like to calculate other rates? (Yes or No):

Validation rules

startingAIR Greater than Zero

endingAIR Greater than Zero and more than startingAIR

rateIncrement Greater than Zero

firstTerm Greater than Zero

lastTerm Greater than Zero and greater than firstTerm

incrementYears Greater than Zero

principal Greater than Zero

Calculation results

numberOfIterations = (int)((endingAIR \* 100 - startingAIR \* 100) / (rateIncrement \* 100));

mir = (startingAIR + (rateIncrement \* i)) / 12;

rateCounter = (startingAIR + (rateIncrement \* i)) \* 100;

annuityFactorNumerator = mir \* Math.pow((1.0 + mir), mtp);

annuityFactorDenominator = (Math.pow((1.0 + mir), mtp) - 1);

annuityFactor = annuityFactorNumerator / annuityFactorDenominator;

Test cases:

Values: Tested?

startingAIR = 0.04000; Yes

endingAIR = 0.06000; Yes

rateIncrement = 0.0025; Yes

firstTerm = 15; Yes

lastTerm = 30; Yes

incrementYears = 5; Yes

principal = 10000.0; Yes

Results:

Interest

Rate 15 Years 20 Years 25 Years 30 Years

4.00 739.69 605.98 527.84 477.42

4.25 752.28 619.23 541.74 491.94

4.50 764.99 632.65 555.83 506.69

4.75 777.83 646.22 570.12 521.65

5.00 790.79 659.96 584.59 536.82

5.25 803.88 673.84 599.25 552.20

5.50 817.08 687.89 614.09 567.79

5.75 830.41 702.08 629.11 583.57

6.00 843.86 716.43 644.30 599.55

Values: Tested?

startingAIR = 0.04000; Yes

endingAIR = 0.1000; Yes

rateIncrement = 0.0025; Yes

firstTerm = 15; Yes

lastTerm = 40; Yes

incrementYears = 5; Yes

principal = 20000.0; Yes

Results:

Interest

Rate 15 Years 20 Years 25 Years 30 Years 35 Years 40 Years

4.00 1479.38 1211.96 1055.67 954.83 885.55 835.88

4.25 1504.56 1238.47 1083.48 983.88 915.79 867.24

4.50 1529.99 1265.30 1111.66 1013.37 946.51 899.13

4.75 1555.66 1292.45 1140.23 1043.29 977.71 931.52

5.00 1581.59 1319.91 1169.18 1073.64 1009.38 964.39

5.25 1607.76 1347.69 1198.50 1104.41 1041.49 997.74

5.50 1634.17 1375.77 1228.17 1135.58 1074.03 1031.54

5.75 1660.82 1404.17 1258.21 1167.15 1107.00 1065.78

6.00 1687.71 1432.86 1288.60 1199.10 1140.38 1100.43

6.25 1714.85 1461.86 1319.34 1231.43 1174.15 1135.48

6.50 1742.21 1491.15 1350.41 1264.14 1208.31 1170.91

6.75 1769.82 1520.73 1381.82 1297.20 1242.83 1206.71

7.00 1797.66 1550.60 1413.56 1330.60 1277.71 1242.86

7.25 1825.73 1580.75 1445.61 1364.35 1312.93 1279.34

7.50 1854.02 1611.19 1477.98 1398.43 1348.49 1316.14

7.75 1882.55 1641.90 1510.66 1432.82 1384.35 1353.24

8.00 1911.30 1672.88 1543.63 1467.53 1420.52 1390.62

8.25 1940.28 1704.13 1576.90 1502.53 1456.98 1428.28

8.50 1969.48 1735.65 1610.45 1537.83 1493.72 1466.19

8.75 1998.90 1767.42 1644.29 1573.40 1530.73 1504.34

9.00 2028.53 1799.45 1678.39 1609.25 1567.99 1542.72

9.25 2058.38 1831.73 1712.76 1645.35 1605.49 1581.32

9.50 2088.45 1864.26 1747.39 1681.71 1643.22 1620.12

9.75 2118.73 1897.03 1782.27 1718.31 1681.18 1659.12

10.00 2149.21 1930.04 1817.40 1755.14 1719.34 1698.29