Interest Rates & NPEPN Quiz Solutions

Q1: Calculate the nominal rate of interest, compounded quarterly, that's equivalent to 2% per quarterly compounding period.

SOLUTION

We know that the quarterly periodic rate $i_4 = 2\%$.

Therefore, $j_4 = i_4 \times 4 = 8\%$.

Answer: 8%

Interest Rates & NPEPN Quiz Solutions

Q2: Calculate the monthly periodic rate of interest that's equivalent to the nominal rate of 12% with monthly compounding.

SOLUTION

We know that the nominal rate $j_{12} = 12\%.$

Therefore, periodic mothly rate $i_{12} = \frac{j_{12}}{12} = \frac{12\%}{12} = 1\%.$

Answer: 1%

Interest Rates & NPEPN Quiz Solutions

Q3: Adam Levine, a mortgage investor, would prefer to earn which of these yields?

1) j2 = 8% 2) j1 = 8.25% 3) j365 = 7.9% 4) Adam would be indifferent among these yields

SOLUTION

Let's convert all these rates to effective to see which one is the highest
(we want the highest one because Adam is an investor).
We are converting to j1 so we don't need the full NPEPN. We can stop at the NPE.

N	8
P	2
E	

j1 = 8.16%

No conversion needed – already j1.

j1 = 8.25%

N	7.9
P	365
E	

j1 = 8.219507%

Answer: j1 = 8.25%

Interest Rates & NPEPN Quiz Solutions

Q4: The effective annual rate for 7% per annum, compounded semi-annually, is:

1) greater than the effective annual rate for 6% per annum, compounded semi-annually
   Yes, because 7% is more than 6% and we can compare these rates directly because they both have the same semi-annual compounding

2) more than the effective annual rate for 7% per annum, compounded annually
   Yes, because j2 = 7% is more than j1 = 7% (same %, more frequent compounding).

3) less than the effective annual rate for 7% per annum, compounded monthly
   Yes, because j2 = 7% is less than j12 = 7% (same %, less frequent compounding).

4) all of the above

Answer:
4) all of the above

Interest Rates & NPEPN Quiz Solutions

Q5: Calculate the semi-annual periodic interest rate that's equivalent to 16% per annum, compounded semi-annually.

SOLUTION

We know that the nominal rate $j_2 = 16\%.$

Therefore, semi-annual periodic rate $i_2 = \frac{j_2}{2} = 8\%.$

Answer: 8%

Interest Rates & NPEPN Quiz Solutions

Q6: Bernie, a first-time home buyer, would prefer which of these rates for his mortgage?

1) j2 = 13.75% 2) j1 = 13.75% 3) j4 = 13% 4) Bernie would be indifferent among these rates

SOLUTION

Let's convert all these rates to effective to see which one is the lowest
(we want the lowest one because Bernie is a borrower).
We are converting to j1 so we don't need the full NPEPN. We can stop at the NPE.

N	13.75
P	2
E	

j1 = 14.222656%

No conversion needed – already j1.

j1 = 13.75%

N	13
P	4
E	

j1 = 13.647593%

Answer:
3) j4 = 13%