

Answer on Question #59561 – Math – Financial Math

Question

A \$36,000 serial bond that has an annual interest rate of 12%, paid semi-annually, will be redeemed in three equal annual instalments of \$12,000. The bond is purchased on an interest date, one year prior to the first annual redemption. If an investor wants 18%, compounded monthly, what is the purchase price?

Solution

Face value is \$36,000, $i = 12\%$, paid semi-annually, three equal annual instalments of \$12,000. If the bond is purchased on an interest date, one year prior to the first annual redemption and an investor wants 18%, compounded monthly, then the purchase price will be

$$36,000 * (1 + (0.12/2)^3) - 12,000 = P * (1 + (0.18/12)^{12}),$$
$$P = (36,000 * (1 + (0.12/2)^3) - 12,000) / (1 + (0.18/12)^{12}) = \$29,970.71.$$

Answer: \$29,970.71.