

Layaway plans allow you, for a fee, to pay for an item over a period of time and then receive the item when you finish paying for it. In November 2011, Senator Charles E. Schumer of New York warned that the holiday layaway programs recently reinstated by several popular retailers were, when you took the fees into account, charging interest at a rate significantly higher than the highest credit card rates. Suppose that you bought a \$85 item on November 15 on layaway, with the final payment due December 15, and that the retailer charged you a \$5 service fee. Thinking of the fee as interest, what simple interest rate r would you be paying for this layaway plan? (Round your answer to three decimal places.)

Solution: Use the formula $INT = PVrt$. The problem says to treat the service fee as interest, so $INT = 5$. The other values we know are $PV = 85$ and $t = \frac{1}{12}$ (all times for this chapter are measured in years, and one month is $1/12$ of a year). The question asks for the interest rate, so we need to solve this equation for r :

$$5 = 85r \left(\frac{1}{12} \right).$$

We can do this by dividing both sides by 85 and multiplying both sides by 12 to get

$$r = 5 \left(\frac{1}{85} \right) (12) \cong 0.70588.$$

Changing this to a percent and rounding to three decimal places gives

$$r = 70.588\%.$$