

Worksheet 9/30/2024

- *Present value of payment stream:*

$$P = \frac{q}{i} \left(1 - \frac{1}{(1+i)^N} \right)$$

where q = payment per period, i = interest rate per period, N = number of periods.

- *Future value of payment stream:*

$$A = q \frac{(1+i)^N - 1}{i}$$

where q = payment per period, i = interest rate per period, N = number of periods.

1. A Kirby vacuum cleaner is sold at \$1,500 with a payment plan of 5 years at a fixed monthly interest rate of 1%. Find the monthly payment.

2. You take a home mortgage of \$150,000 with a fixed APR of 4% for 30 years.

a) Find the monthly payment.

b) Find the amount that your monthly payment goes toward principle and the amount that goes toward interest at the end of the first month.

c) Find the amount that your monthly payment goes toward principal and the amount that goes toward interest at the end of the second month.

3. You can afford monthly payments of \$1500. If current mortgage rates are 3.75% for a 30-year fixed rate loan.

a) How much can you afford to borrow?

b) If you are required to make a 20% down payment and you have the cash on hand to do it, how expensive a home can you afford?