

Below are five detailed examples that cover a range of scenarios, from personal finance to business planning.

Example 1: Personal Retirement Savings

Suppose you're 30 years old and plan to retire at 60. You aim to save \$500 each month at an annual interest rate of 6%.

- **Rate:** $6\% / 12 = 0.5\%$ per month
- **Nper:** $30 \text{ years} \times 12 \text{ months/year} = 360$
- **Pmt:** -500 (Outgoing payment)

excel

=FV(0.005, 360, -500)

This will return **\$502,810.10**, showing that you will have over half a million dollars saved by retirement.

Example 2: Business Loan Repayment

Your business has taken out a \$50,000 loan at a 5% annual interest rate, and you intend to pay it back over 5 years with monthly payments.

- **Rate:** $5\% / 12 = 0.4167\%$ per month
- **Nper:** $5 \text{ years} \times 12 \text{ months/year} = 60$
- **Pmt:** (Use a loan calculator to find this value. Let's assume it's \$944.10)
- **PV:** 50,000 (The loan amount)

excel

=FV(0.004167, 60, -944.10, 50000)

This will return a value close to zero, confirming that the loan will be fully repaid after 5 years with these monthly payments.

Example 3: Annual College Savings with a Starting Amount

You have a child and want to save for their college education. You currently have \$10,000 saved and plan to add \$5,000 each year for the next 18 years at an interest rate of 4%.

- **Rate:** 4% per year
- **Nper:** 18 years
- **Pmt:** -5,000
- **PV:** -10,000 (Initial savings)

excel

=FV(0.04, 18, -5000, -10000)

This returns **\$186,159.68**, showing that you will have nearly \$190,000 saved for your child's education in 18 years.

Example 4: Investment with Quarterly Contributions

You invest \$1,200 every quarter into a stock market fund that averages a 7% annual return.

- **Rate:** 7% per quarter
- **Nper:** 20 years \times 4 quarters/year = 80 quarters
- **Pmt:** -1,200

excel

=FV(0.0175, 80, -1200)

This returns **\$172,745.89**, indicating your investment will be worth nearly \$173,000 after 20 years.

Example 5: Mortgage Payments

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You've bought a house with a \$300,000 mortgage at a 3.5% annual interest rate. The mortgage term is 30 years with monthly payments.

- **Rate:** 3.512%123.5% per month
- **Nper:** 30×1230×12 months
- **Pmt:** (Use a mortgage calculator to find this value. Let's assume it's \$1,347.13)
- **PV:** 300,000 (The mortgage amount)

excel

```
=FV(0.002917, 360, -1347.13, 300000)
```

This will return a value close to zero, confirming that the mortgage will be fully paid off after 30 years with these monthly payments.

These examples should give you a comprehensive understanding of how versatile and useful the FV function can be for different financial calculations.