How to calculate present value of a future amount

What is the difference between present value and future value?

Present and future value are financial models that represent the value of money or assets today or in the future. **Present value** is how attorneys calculate today's value with interest or inflation rates considered. **Future value** is used to calculate how much a given asset or dollar amount will be worth over time after factoring in interest and growth rates.

These are important concepts in many legal practice areas, like divorce law, estate planning, personal injury, and business law. Calculating present value and future value helps you determine the true worth and overall financial impact of client settlements, annuities, court-awarded damages, estate gifts, trust distributions, and more over time.

Attorneys analyze present and future value in scenarios like these:

- **Estate planning strategies:** Evaluating the financial impact of future gifts to children, contributions to charity, trust account distributions, and more
- **Settlements and annuities:** Identify whether future or structured payments deliver more value than one-time settlements
- **Divorce and business assets:** Determining the true value of assets, future income, pensions, and more for equitable asset division
- **Court-awarded compensation:** Analyzing damages based on medical expenses or lost income in personal injury and disability, wrongful death, or employment cases

Imagine you're representing a client who was recently injured in a car accident. Your client is offered two options by the opposing party:

- $100,000 lump sum settlement paid today
- $150,000 structured settlement paid over 10 years

Without calculating present value, the $150,000 structured settlement might seem like it's worth more. But with the payment schedule and 10 years of interest and inflation factored in, which option puts the most money in your client's pocket? That's why knowing how to calculate present value is so important.

With a clear understanding of how future payments will affect your clients, you can be a stronger legal advocate and create more beneficial strategies for their assets.

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How to find the present value of money

To determine the present value of a future amount, you need three values:

- Current amount
- Interest rate
- Duration

The interest rate determines how quickly a present amount grows over time, and the duration determines how much time the dollar amount has to grow. Usually the duration is known, but the interest rate depends on a judgement call.

For example, if the amount in question is an asset that will be divided in a divorce case (like a home or spouse's retirement account), you may need to project a reasonable interest rate to understand the present or future value.

It's important to come up with a reasonable projection because the assumed interest rate directly impacts the present value, and in this example, how equitably the assets are divided between spouses. When assumed interest rates are higher, the present value is lower.

Let's look at the formula for present value and future value to understand the financial implications of how time, interest, and growth rates affect the actual value of assets.

Formula to calculate the present value

Present value is calculated by adding one to the interest rate expressed as a fraction, then raising the result to the power of the duration of time. Divide the amount by the result to determine present value.

The formula for calculating present value is:


Formula for calculating the present value of future payments

Let's break down the formula:

- Start with your interest rate, expressed as a fraction.
- Add 1 to the interest rate.
- Raise the result to the power of duration.
- Divide the amount by the result.

This formula allows you to look at the expected growth rate of the current amount each year so you can “rewind” the growth and see what the actual value of that amount is today.

In the first step, your assumed interest rate tells you how quickly the dollar amount will grow each year. In the second step, you add one to the assumed interest rate to find the annual growth factor.

In step three, you raise the result (one + assumed interest rate) to the power of duration, or how long the amount has to grow. And in the final step, division tells you the present value, or how much money your client would need today to equal the expected amount after the duration of time.

Example present value calculation

You’re working with a client in small claims court. They are offered $100 today, or $150 paid in 10 years with an annual interest rate of 5%. Let’s calculate which option is the better offer for your client using the present value formula:

- **Amount:** $150
- **Interest rate:** 5% per year, or 0.05
- **Duration:** 10 years

Plugging these numbers into the present value formula, we get:

This calculation tells you that a future $150 payment is actually worth less than $100 paid to your client today, with a present value of only $92.09. Inflate this example to a client being offered $100,000 today or $150,000 in 10 years; the $150,000 future settlement would only be worth about $92,080 today, making the lump sum $100,000 payment the better option.

Think about this from your own perspective. If you were to allow a client to wait 10 years before paying your fee, you’d end up getting paid less.

Over those 10 years, you’re still paying hard costs (like filing fees or travel expenses) and soft costs (like staff salaries or rent) without immediate

reimbursement. If your payment is delayed by a decade, it's worth less, just like the $150 delayed payment in this example.

Note that the values have to use the same units, or else they need to be adjusted. For example, if you use an annual interest rate, your duration should be in years as well, and we assume that the interest compounds once per period.

How to find the future value of money

The future value formula is related to present value, but there are key differences. While calculating the present value helps you reverse the growth of a future amount to see its worth today, future value helps you project how much a present amount will grow to see its worth in the future.

Unlike the present value formula, future value is calculated by multiplying the present value by the assumed interest rate plus one, then raising the result to the power of the duration.

Formula to calculate the future value

To calculate the future value of a given amount, use this formula:

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- **FV:** Future value
- **PV:** Present value
- **r:** Interest rate
- **d:** Duration

The first step is plugging in the present value, or the actual amount today. This becomes the baseline value. Step two is similar to the present value formula: add one to the assumed interest rate to create an annual growth multiplier.

In step three, you raise the result of the interest rate plus one to the power of the duration. This tells you how much interest compounds on the present value over a given period of time.

Finally, you multiply the result by the present value to see how much the initial amount will be worth after growing over time.

Example future value calculation

You deposit $10,000 into a client trust account that earns 5% annual interest. The money stays in the account for 10 years. Using the future value formula, you can determine that the initial $10,000 deposit will be worth $16,289 after 10 years.

Understanding how to calculate present value and future value will help you better advise and serve clients. From analyzing asset division to settlement payouts, there's inherent value in being able to see how money's worth can change over time.

With the formula for present value and future value top of mind, you'll be able to guide clients through high-impact financial decisions with confidence and help them reach the best possible outcomes.

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