OPTION VOLATILITY, PLAINLY — FOURTH OF THE PRIMER SERIES

# What an Option's Price Is Saying

*Every option price carries a number inside it: how much the market expects the stock to move. That number is implied volatility. Here is how to read it, turn it into a dollar range, and judge whether options are expensive or cheap. One real example throughout: Tesla options after the October 16, 2026 close.*

An option is a right, not an obligation, bought up front. Five terms cover the basics.

| TERM | WHAT IT MEANS | THE TESLA EXAMPLE |
|---|---|---|
| **Call** | Right to *buy* at a set price by a set date. Gains if the stock rises. | Nov 20 $355 call: $20.75 |
| **Put** | Right to *sell* at a set price by a set date. Gains if the stock falls. | Nov 20 $355 put: $20.00 |
| **Strike** | The set price in the contract. | $355, "at the money" (Tesla: $354.72) |
| **Expiry** | The date the right ends. | November 20, 2026, 33 days away |
| **Premium** | The option's price, per share. A contract is 100 shares. | $20.75 × 100 = $2,075 per call |

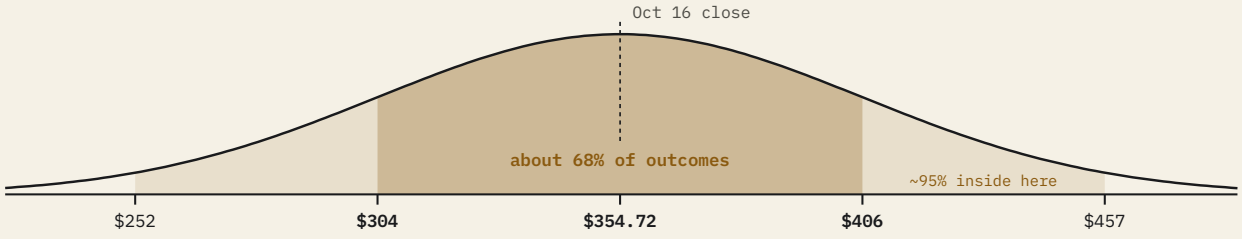
## IMPLIED VOLATILITY, IN ONE SENTENCE

**Implied volatility (IV) is the yearly move an option's price assumes, as a percent of the stock price.** It is worked backward from the premium with a standard formula (Black–Scholes): pay more for the same option and the implied move rises. Tesla's Nov 20 IV: about **48%**. It measures how far, not which way.

## TURNING IV INTO A DOLLAR RANGE

1. **Shrink the yearly number to your window.** Multiply by √(days ÷ 365). For 33 days, √(33 ÷ 365) = 0.30.
2. **Apply it.** 48% × 0.30 = 14.4%.
3. **Convert to dollars.** 14.4% of $354.72 = **$51**. (Shaded below: Nov 20, 48% IV, 33 days.)
4. **Read it.** About a 68% chance Tesla ends Nov 20 between $304 and $406. Double it for ~95%: $252–$457.

**Daily shortcut:** divide IV by 16 (√252 trading days). 48 ÷ 16 = 3%: a typical Tesla day priced at about ±$10.70.




**±$51** The one-standard-deviation move priced into Tesla's November 20 options. **Cross-check:** the $355 call plus put (a "straddle") cost $40.75, and a straddle costs about 0.8 × that move: 0.8 × $51 = $41.

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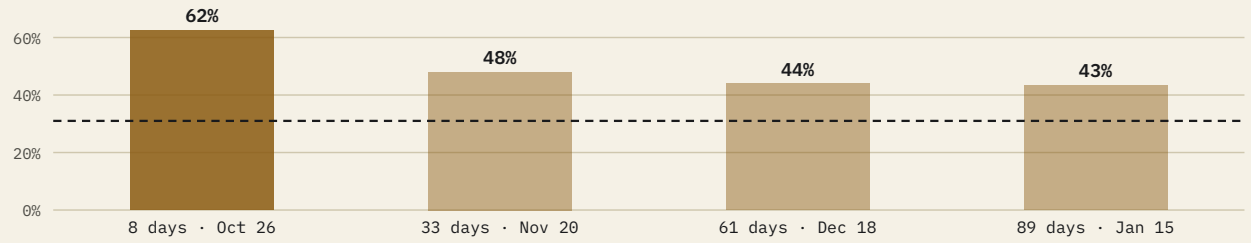
## EXPENSIVE OR CHEAP? THREE COMPARISONS

An IV number is just a price; calling it expensive or cheap needs a comparison.

**1. Against what the stock actually did.** *Realized volatility* is the same yearly-move measure, calculated from the stock's real daily price changes instead of option prices. Tesla's, over the 20 trading days to October 16: about 31%. Options charged 48%, **1.5 times** that. A seller keeps that gap if the month is calm; a buyer pays it.

**2. Against its own past.** The *IV percentile* asks where today's IV sits among the stock's own past readings. The 90th percentile means options cost more on only 10% of past days. Free data has no IV history, so we began recording it nightly on October 16, 2026; the desk pages show the percentile as the log grows.

**3. Against other dates and other strikes.** Below: at-the-money IV for four expiries, called the *term structure*.




At-the-money IV by expiry, TSLA, Oct 16, 2026 close. Dashed line = realized volatility, last 20 sessions (31%).

The 8-day option is priced at 62%, against 43% to 48% later. Tesla's October 21 earnings report falls inside those 8 days, packing a whole event into a short option. Subtracting the everyday level leaves the move charged for the report itself: about **±6.7%, or ±$24**. Across strikes, a put 5% below the price and a call 5% above were within one IV point: no extra paid for crash protection or for upside bets.

## WHAT IMPLIED VOLATILITY CANNOT TELL YOU

- **It is a price, not a forecast.** Set by what buyers and sellers pay; often high before events, low before surprises.
- **It assumes a bell curve.** Real stocks gap on news more often, so extremes come more often than the math says.
- **It has no direction.** 48% fits a 14% rise just as well as a 14% fall.
- **One in three is not rare.** Ending outside the one-standard-deviation range happens about one expiry in three.

**See these numbers live for every name we follow.**
Each desk page shows IV, the expected move, the term structure and the full option chain, explained in plain English.

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**Sources & method:** Tesla option quotes and per-contract IVs from public market-data feeds after the October 16, 2026 close; premiums are bid-ask midpoints. At-the-money IV = average of the Nov 20 $355 call (49.1%) and put (46.8%). Expected move = price × IV × √(days ÷ 365); straddle ≈ √(2/π) ≈ 0.8 × that move. Realized volatility = standard deviation of 20 daily log changes × √252, computed by Ananke Alpha. Event move = $\sqrt{(IV_{8d}^2 - IV_{89d}^2)} \times \sqrt{(8 \div 365)}$, approximate. Black & Scholes (J. Political Economy, 1973); Natenberg, *Option Volatility and Pricing* (2015); OCC, "Characteristics and Risks of Standardized Options." Dealer hedging: Note No. 005.

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