How to Find the Original Price Before a Discount (Formula + Calculator)

You see a sale tag reading 40% OFF - Now $59.99 but what was the original price? Learn the reverse discount formula to find the price before any discount, with step-by-step examples and a free calculator app.

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What Was the Original Price? The Everyday Mystery

You are browsing your favorite online store and spot a pair of sneakers on sale. The tag says "40% OFF - Now $59.99." It feels like a great deal, but a question nags at you: what was the original price before the discount? Was this item really worth $100 before the sale, or is the retailer inflating the "original" to make the discount look bigger?

This is not just idle curiosity. Knowing how to **find the original price before a discount** helps you verify that a deal is genuine, compare prices across stores, and make smarter purchasing decisions. Whether you are checking a Black Friday offer or auditing competitor pricing, the reverse discount formula is an essential tool.

The math is straightforward once you know the formula, but even easier when you have the right tool. PercentSnap (also on Android) includes a dedicated reverse discount calculator that finds the original price instantly. Enter the sale price and discount percentage, and the app does the rest, offline, with no ads.

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The Formula to Calculate Original Price

The formula to find the original price before a discount is:

Original Price = Sale Price / (1 - Discount% / 100)

This is the reverse discount formula. It works by recognizing that the sale price represents a specific fraction of the original price. If the discount is 40%, then the sale price equals 60% of the original. So you divide by 0.60 (which is 1 minus 0.40) to recover the full 100%.

Why You Cannot Just Add the Percentage Back

This is the single most common mistake people make. Let us say an item is $60 after a 40% discount. Many people instinctively calculate 40% of $60, which is $24, and add it back: $60 + $24 = $84. But that is wrong.

The reason is that 40% of the sale price is not the same as 40% of the original price. The discount was calculated from the original, not from the discounted price. When you add 40% of $60 back, you are calculating 40% of the wrong base.

The correct calculation: $60 / (1 - 0.40) = $60 / 0.60 = $100. And indeed, 40% of $100 is $40, and $100 - $40 = $60. The math checks out.

This mistake compounds quickly. A purchasing manager estimating the pre-discount cost of 500 items with the wrong formula would produce a significantly distorted budget.

Breaking Down the Example

Let us walk through our opening scenario completely. You see sneakers at $59.99 with 40% off:

1. Identify the discount percentage: 40%
2. Convert to a decimal: 40 / 100 = 0.40
3. Subtract from 1: 1 - 0.40 = 0.60
4. Divide the sale price by this number: $59.99 / 0.60 = $99.98

The original price was approximately $99.98, which the store likely rounded to $99.99 or $100.00. Now you can judge whether that original price is reasonable for the product and whether the discount is genuine.

Step-by-Step Examples

Example 1: Simple Percentage Discount

You find a pair of running shoes on sale for $74.99 with a sign that says "25% OFF." What was the original price?

1. Discount percentage: 25%
2. Decimal: 25 / 100 = 0.25
3. Subtract from 1: 1 - 0.25 = 0.75
4. Divide: $74.99 / 0.75 = $99.99

The original price was $99.99. You can verify: 25% of $99.99 = $25.00, and $99.99 - $25.00 = $74.99. Correct.

This example also shows why the naive approach fails. If you had simply calculated 25% of $74.99 ($18.75) and added it back, you would get $93.74, which is wrong by more than $6.

Example 2: Multiple Stacked Discounts

This scenario is common during holiday sales: a store offers 30% off, and then you have a coupon for an extra 10% off the already-reduced price. The final price is $50.40. What was the original price?

With stacked discounts, each discount applies sequentially to the already-reduced price, not to the original. So you need to reverse them one at a time, working backward.

1. Reverse the second discount (10% off): $50.40 / (1 - 0.10) = $50.40 / 0.90 = $56.00
2. Reverse the first discount (30% off): $56.00 / (1 - 0.30) = $56.00 / 0.70 = $80.00

The original price was $80.00. Let us verify forward: 30% off $80 = $56. Then 10% off $56 = $50.40. Correct.

An important point: 30% off plus 10% off is NOT the same as 40% off. If the item were simply 40% off at $80, the price would be $48.00, not $50.40. Stacked discounts are always less generous than a single combined discount of the same total percentage because the second discount applies to a smaller base.

This is where having a calculator really helps. PercentSnap handles stacked discounts and reverse calculations so you do not have to manage multiple steps manually.

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Example 3: Finding Discount Percentage from Two Prices

Sometimes you know both the original and sale prices but want to find the discount percentage. For instance, a jacket was $120 and is now $84. What percentage discount is that?

The formula is:

Discount % = ((Original Price - Sale Price) / Original Price) x 100

1. Difference: $120 - $84 = $36
2. Divide by original: $36 / $120 = 0.30
3. Multiply by 100: 30%

The discount is 30%. This is useful when stores show "WAS $120 / NOW $84" without explicitly stating the percentage. Knowing the actual percentage helps you compare deals across different products and stores.

You can also derive this from the main formula: d = 1 - (Sale Price / Original Price) = 1 - (84 / 120) = 0.30, or 30%.

Why This Calculation Matters

Verifying Fake Discounts

Some retailers inflate the "original price" to make a discount seem more impressive. This practice, sometimes called a fake reference price or phantom discount, is actually illegal in many jurisdictions. By calculating what the original price should be based on the stated discount and sale price, and then comparing it to historical prices (which tools like price trackers can show), you can spot inflated claims.

For example, if a TV is advertised as "50% OFF - Now $400" but its regular price was $500 last week, the real discount is only 20%. The stated $800 original was never the actual selling price.

Comparing Real Value Across Stores

Different stores may offer different discount percentages on products with different original prices. Working backward to find each original price lets you compare like for like. An item at $75 after 25% off (original $100) costs more than an item at $72 after 10% off (original $80), despite the higher discount percentage.

Consumer Protection

In the EU, the Omnibus Directive requires that the "previous price" shown must be the lowest price from the prior 30 days. In the US, the FTC requires that former prices in ads must be genuine. Calculating the implied original price empowers you to file complaints when retailers violate these rules.

Common Mistakes

Adding the Percentage Back to the Sale Price

As covered earlier, this is the number one error. 40% of the sale price is not 40% of the original. Always divide by (1 - discount%), never add discount% of the sale price. The mistake gets worse as the discount increases. At 50% off, the naive method gives you 50% too little: you would calculate $60 + $30 = $90 instead of the correct $60 / 0.50 = $120.

Forgetting About Tax

In many regions, the advertised price does not include sales tax or VAT. If you paid $63.59 for that $59.99 item because tax was added at checkout, make sure you reverse the tax first before reversing the discount. Use the pre-tax sale price in the formula. PercentSnap also has a reverse VAT calculator for this exact purpose.

Not Distinguishing Stacked vs Combined Discounts

As shown in Example 2, two discounts of 30% and 10% applied sequentially do not equal a single 40% discount. The order also matters slightly if the percentages interact with different bases, though for simple sequential discounts the order does not change the final result. Always clarify whether a coupon stacks on top of an existing sale or replaces it.

The Easiest Way: Use PercentSnap

While the formula is simple enough, real-world situations often have extra complications: stacked discounts, tax, and multiple items to compare. PercentSnap is designed to handle all of these scenarios instantly.

Here is how to find the original price in PercentSnap:

1. Open the app and select the Reverse Discount (Original Price) calculator.
2. Enter the sale price you see on the tag.
3. Enter the discount percentage.
4. The app instantly shows the original price, plus the dollar amount saved.

Beyond reverse discounts, PercentSnap handles forward discount calculations, markup vs margin, percentage change vs percentage points, and VAT calculations. All calculations stay in your history, can be pinned for quick reference, and work completely offline. No ads, no subscriptions, no account needed, and 17 languages supported.

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Frequently Asked Questions

How do I reverse a percentage?

To reverse a percentage, divide by the decimal equivalent of the remaining fraction. If something was reduced by X%, the sale price represents (100 - X)% of the original. So divide the sale price by (100 - X) / 100. For example, to reverse a 20% discount on a $64 item: $64 / 0.80 = $80. This works for any percentage reduction, not just discounts. You can use the same approach to find a pre-tax price, a pre-shrinkage value, or any original number that was reduced by a known percentage.

How do I find the original price if I know the discount amount?

If you know the dollar amount of the discount and the discount percentage, use this formula: Original Price = Discount Amount / (Discount% / 100). For example, if you saved $30 and the discount was 25%, then the original price was $30 / 0.25 = $120. The sale price would be $120 - $30 = $90. This is useful when a receipt shows "You saved $30" and the sign says "25% off" but does not show the original price explicitly.

Can I calculate the original price with tax included?

Yes, but you need to remove the tax first. If your total paid was $74.19 and sales tax is 8.25%, first reverse the tax: $74.19 / 1.0825 = $68.54 (this is the sale price before tax). Then reverse the discount: if the item was 30% off, the original price is $68.54 / 0.70 = $97.91. Always reverse tax before reversing the discount because tax was applied after the discounted price was determined. PercentSnap can handle both steps: use the reverse VAT mode first, then the reverse discount mode.

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