

Percent to Total Calculator

Calculates the total value (T) when a percentage of it (P%) and the partial value (V) are provided:

Product Requirements

Features

- **Input Fields:** Allows users to enter values for percent to total calculations.
 - **Value (V)**
 - **Percent (%)**
 - **Output Display:** Shows the calculated total value.
 - **Total Value (T)**
 - **Buttons**
 - **Calculate:** Executes the calculation.
 - **Reset:** Clears all fields (data, error messages, or tooltip info).
 - **Share:** Enables users to share results, which remain stored on the server for up to 30 days.
 - **Embed:** Generates an embed code for integration on other websites.
 - **Equation Display:** Shows the complete formula used for the calculation, improving transparency and understanding.
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Functional Requirements

Keyboard Validation

- **Enter Key**
 - Executes calculation if all input fields are valid.
 - Ensures fields are filled. If not, highlights empty fields in red.
- **Tab Key**
 - Navigates between fields/buttons in order (left-to-right, top-to-bottom).
 - Prevents skipping invalid fields (focus stays until corrected).
- **Copy/Paste/Cut (Ctrl+C, Ctrl+V, Ctrl+X)**
 - Allows copying/pasting/cutting values into input fields.
 - Validates pasted values to ensure:
 - Only numeric values (integers/floats) are accepted.
 - Respect field-specific constraints (e.g., 25-digit limit, positive/negative float).
 - Displays a tooltip "Invalid input" for invalid entries.
 - Clears the field and retains focus if validation fails.
- **Arrow Keys**
 - **Up/Down:** Increment or decrement numeric values within valid limits.
 - **Left/Right:** Move the cursor within fields without altering the value.

Input Fields [Value (V), Percent (%)]

- **On Click:**
 - Cursor blinking.
 - Faded Placeholder (Numbers only): Disappears once typing begins.
 - Faded Placeholder doesn't reappear unless the calculator is reset.
- **Fixed Placeholders (e.g., %):**
 - Always visible unless the result is "Undefined."
- **Data Type:** Accept only numeric values (Integer + Floats; both positive and negative).
- **Placeholders:**
 - **Faded Placeholder**
 - V: 43
 - Percent: 87
 - **Fixed Placeholder**
 - Percent: %
- **Value Limit:** Twenty-five digits (including decimal).
 - Show the whole input in a tooltip on hover if the value exceeds the input field size.
 - Stop taking input after 25 digits and display: "Input limit exceeded."
- **Focus Behavior:** Retain focus on empty/invalid fields until corrected.

Output Fields [Total Value (T)]

- Displays the calculated total value (T).
- **Placeholder:**
 - **Faded Placeholder**
 - T: 49.425
- **Formatting Rules:**
 - For values between \pm (0.001 and 1,000,000), display in standard decimal format.
 - For values outside this range, use scientific notation ($N \times 10^n$).
 - Use up to three decimal places for decimal output.
 - **Half-Up Rounding:**
 - 1558.456 \rightarrow 1558.456
 - 1558.4549 \rightarrow 1558.455
 - 1558.4572 \rightarrow 1558.457
- If users change any input field after calculation, clear the previous result and output messages.
- Users must press "Calculate" to see the updated result.

Formula Display

- Formula:
$$T = VP/100T = \frac{V}{P / 100}T = P/100V$$

Calculation Examples

1. **For Values: V = 43, Percent = 87**

$$T = 43 \cdot 87 / 100 = 430.87 = 49.425$$
$$T = \frac{43}{100} \cdot 87 = \frac{43}{100} \cdot 87 = 49.425$$

Output: 49.425

2. **For Values: V = 20, Percent = 50**

$$T = 20 \cdot 50 / 100 = 200.5 = 40$$
$$T = \frac{20}{100} \cdot 50 = \frac{20}{100} \cdot 50 = 40$$

Output: 40

3. **For Values: V = -50, Percent = 10**

$$T = -50 \cdot 10 / 100 = -500.1 = -500$$
$$T = \frac{-50}{100} \cdot 10 = \frac{-50}{100} \cdot 10 = -500$$

Output: -500

4. **For Values: V = 0, Percent = 20**

$$T = 0 \cdot 20 / 100 = 0$$
$$T = \frac{0}{100} \cdot 20 = 0$$

Output: 0

5. **Undefined Case:**

If Percent=0 Percent = 0 Percent=0:

Division by zero occurs. Display "Undefined."

Output: Undefined