



## 2warm

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Easy General Skills picoCTF 2019

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### Description

Can you convert the number 42 (base 10) to binary (base 2)?

145,760 users solved

Hints

1

Submit your answer in our competition's flag format. For example, if your answer was '11111', you would submit 'picoCTF{11111}' as the flag.



80%



Liked

picoCTF{FLAG}

Submit Flag

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**Challenge:** 2warm

**Category:** General Skills

**Date:** 01/13/26



## I. Objective

The objective of this task was to convert a given decimal (base 10) number into **binary (base 2)** and submit it in the required flag format.

## II. Background

In computer systems, numbers can be represented in **different bases**:

- **Base 10 (Decimal):** The normal numbers we use every day (0–9)
- **Base 2 (Binary):** Only uses 0 and 1, which is how computers store and process data

This challenge demonstrates the importance of understanding **how numbers are represented in computers**.

## III. Tool Used

- **Rapidtables.com – Base Converter**

Used to quickly convert decimal numbers to binary without manually calculating each place value.

## IV. Methodology

1. Opened the website that allows base conversions:

<https://www.rapidtables.com/convert/number/base-converter.html>

2. Entered the decimal number 42 in the input field.
3. Selected **base 10 → base 2** conversion.
4. Clicked **Convert**.
5. The website returned the binary value:

101010

6. Copied the result and placed it inside the picoCTF flag format.



## V. Result

**picoCTF{101010}**

### Base Converter

Base calculator      Base converter

Convert number from any base to any base:

Enter number

From Base

10 (decimal)2 (binary)8 (octal)16 (hex)Custom

To base

2 (binary)8 (octal)10 (decimal)16 (hex)Custom

= Convert    × Reset    ⚡ Swap

Result number (6 digits)

Copy

Calculation steps

Decimal to base 2 calculation:



## VI. Explanation

- Decimal numbers (base 10) are what we normally use in daily life.
- Binary numbers (base 2) are what computers understand internally. Each digit in binary represents a **power of 2**.
- The challenge gave 42 in decimal. Converting it to binary gives 101010, which can be verified manually:

$$42 \div 2 = 21 \text{ remainder } 0 \rightarrow \text{least significant bit}$$

$$21 \div 2 = 10 \text{ remainder } 1$$

$$10 \div 2 = 5 \text{ remainder } 0$$

$$5 \div 2 = 2 \text{ remainder } 1$$

$$2 \div 2 = 1 \text{ remainder } 0$$

$$1 \div 2 = 0 \text{ remainder } 1 \rightarrow \text{most significant bit}$$

- Reading the remainders from top to bottom → **101010**
- Using the website is just a fast method to **avoid manual calculation**, but the logic is the same.

## VII. Conclusion

This challenge reinforces the concept of **number bases** and demonstrates how decimal numbers are converted into binary. Understanding base conversions is essential in cybersecurity and computer science because computers use **binary internally**, and many CTF challenges require converting between bases.

— The Analyst: Hyposelenia