

# Find The Sum Of 0.2126 And 0.7145 Correct To 3 Significant Figures

**Find The Sum Of 0.2126 And 0.7145 Correct To 3 Significant Figures** is a common problem in mathematics, especially in fields requiring precise calculations such as science, engineering, and finance. Properly adding decimal numbers and rounding the result to a specified number of significant figures ensures accuracy and consistency in data presentation. In this comprehensive guide, we will explore the step-by-step process to accurately find the sum of 0.2126 and 0.7145 and round the result to three significant figures. We will also discuss related concepts, tips for precise calculations, and practical applications of significant figures in real-world scenarios.

---

## Understanding Significant Figures

### What Are Significant Figures?

Significant figures (often abbreviated as "sig figs") are the digits in a number that carry meaningful contributions to its precision. This includes all non-zero digits, zeros between non-zero digits, and trailing zeros in a decimal number.

Key points about significant figures:

- Non-zero digits are always significant (e.g., 123.45 has 5 significant figures).
- Leading zeros are not significant (e.g., 0.0025 has 2 significant figures).
- Zeros between non-zero digits are significant (e.g., 1002 has 4 significant figures).
- Trailing zeros in a decimal number are significant (e.g., 0.500 has 3 significant figures).
- Trailing zeros in a whole number without a decimal point may or may not be significant depending on context.

### Importance of Significant Figures in Calculations

Using the correct number of significant figures is essential for:

- Maintaining the precision of measurements.
- Ensuring consistency in scientific reporting.
- Avoiding over- or under-estimating results.

When performing addition or subtraction, the rule is to round the answer to the least precise decimal place of the numbers involved.

---

# Step-by-Step Guide to Adding 0.2126 and 0.7145

## Step 1: Write Down the Numbers

The numbers we are adding are:

- 0.2126
- 0.7145

## Step 2: Align Decimals and Add

Perform the addition as you would with whole numbers, aligning decimal points:

```
  0.2126
+ 0.7145
-----
  0.9271
```

Adding the numbers:

- $6 + 5 = 11$  (write 1, carry 1)
- $2 + 4 + 1$  (carry) = 7
- $1 + 1 = 2$
- $2 + 7 = 9$

Sum: 0.9271

## Step 3: Determine the Precision for Rounding

Since we need the answer correct to 3 significant figures, identify the most precise decimal place among the original numbers:

- 0.2126 has 4 decimal places.
- 0.7145 has 4 decimal places.

The sum's decimal places (4) are more precise than needed for 3 significant figures. The key is to look at the first 3 significant digits in the result.

## Step 4: Round the Result to 3 Significant Figures

The sum is 0.9271.

- The first three significant digits are: 9, 2, 7.
- The fourth digit (1) is less than 5, so we do not round up.

Final Answer: 0.927

Thus, the sum of 0.2126 and 0.7145, rounded to 3 significant figures, is 0.927.

---

## **Additional Tips for Accurate Calculations and Rounding**

### **1. Use a Calculator Carefully**

- Always ensure your calculator is set to handle decimal inputs properly.
- Double-check entries to prevent input errors.

### **2. Be Mindful of Rounding Rules**

- When rounding to significant figures:
- If the digit after your cutoff is 5 or more, round up.
- If less than 5, leave the last significant digit unchanged.
- Rounding should be done only once at the end of the calculation to maintain accuracy.

### **3. Understand When to Use Significant Figures**

- In measurements, report results with the same level of precision as the least precise measurement.
- In calculations, round intermediate steps cautiously to avoid compounding errors.

### **4. Practice with Examples**

- Regular practice helps in mastering the concept of significant figures and improves calculation accuracy.

---

## **Real-World Applications of Adding Decimal Numbers Correctly**

### **1. Scientific Data Analysis**

Scientists often measure quantities with limited precision. Properly adding measurements ensures valid experimental results.

## 2. Engineering Calculations

Engineers need to sum measurements from different components, ensuring the final result respects the precision limits.

## 3. Financial Calculations

Financial analysts combine figures from various sources, where rounding to appropriate significant figures maintains data integrity.

## 4. Educational Purposes

Learning to add decimal numbers accurately and round correctly forms a foundational skill in mathematics education.

---

## Summary of Key Points

- When adding 0.2126 and 0.7145, the precise sum is 0.9271.
- Correctly rounded to 3 significant figures, the answer is 0.927.
- The rule for addition and subtraction is to round to the least precise decimal place of the original numbers.
- Mastering significant figures is essential for precise scientific and mathematical work.

---

## Conclusion

Finding the sum of 0.2126 and 0.7145 and rounding it to 3 significant figures is a fundamental skill in mathematics that emphasizes accuracy and proper data presentation. By understanding the concept of significant figures, following systematic steps, and applying appropriate rounding rules, you can confidently perform such calculations in academic, professional, or everyday contexts. Remember to practice regularly and always consider the precision of your measurements or data sources to ensure your results are both accurate and meaningful.

---

Meta Description: Learn how to accurately find the sum of 0.2126 and 0.7145 and round the result to 3 significant figures with detailed explanations, step-by-step instructions, and practical tips for precise calculations.

## Frequently Asked Questions

## **What is the sum of 0.2126 and 0.7145, rounded to 3 significant figures?**

The sum is 0.927 when rounded to 3 significant figures.

## **How do you add 0.2126 and 0.7145 and express the result correctly to 3 significant figures?**

Add the numbers to get 0.9271, then round to 3 significant figures, resulting in 0.927.

## **Why is it important to round the sum to 3 significant figures in this calculation?**

Rounding to 3 significant figures ensures consistency in precision and matches the precision of the given numbers.

## **Can I add 0.2126 and 0.7145 directly and then round the total to 3 significant figures?**

Yes, first add the numbers to get 0.9271, then round to 3 significant figures, which gives 0.927.

## **What is the step-by-step process to find the sum of 0.2126 and 0.7145 correct to 3 significant figures?**

Step 1: Add 0.2126 and 0.7145 to get 0.9271. Step 2: Round 0.9271 to 3 significant figures, resulting in 0.927.

## **Is the answer 0.927 correct when adding 0.2126 and 0.7145 and rounding to 3 significant figures?**

Yes, the sum is approximately 0.927 when rounded to 3 significant figures.

## **How do significant figures affect the rounding of the sum in this problem?**

Since both numbers are given to 4 decimal places, the sum is rounded to 3 significant figures, affecting the precision of the final answer.

## **What is the importance of significant figures in mathematical calculations like this?**

Significant figures communicate the precision of measurements and calculations, ensuring the results are not over-precise.

# If the numbers were 0.213 and 0.715, what would be the sum rounded to 3 significant figures?

Adding 0.213 and 0.715 gives 0.928, which remains 0.928 when rounded to 3 significant figures.

## Additional Resources

Find The Sum Of 0.2126 And 0.7145 Correct To 3 Significant Figures

In the world of mathematics and scientific calculations, precision and clarity are paramount. Whether you're an engineer, a student, or a scientist, understanding how to perform accurate arithmetic operations and appropriately round results is essential. This article delves into the specific task of adding two decimal numbers—0.2126 and 0.7145—and then rounding the result to three significant figures. We will explore the importance of significant figures, step-by-step procedures for addition, and the principles behind rounding, ensuring that the process is thorough yet accessible.

---

### Understanding the Problem: The Importance of Precision in Calculations

Before jumping into the calculation, it is crucial to understand what the task entails. The problem asks for the sum of two decimal numbers, 0.2126 and 0.7145, with the final answer rounded to 3 significant figures.

This seemingly simple operation involves two key components:

1. Performing accurate addition of decimal numbers.
2. Rounding the result to a specific level of precision—in this case, three significant figures.

Why does this matter? In scientific contexts, the level of precision can significantly impact the interpretation of results. Overly precise answers may imply unwarranted accuracy, while insufficient precision can lead to loss of critical information. Therefore, understanding how to properly round to significant figures ensures that the reported value reflects the true precision of the measurements.

---

### The Concept of Significant Figures

#### What Are Significant Figures?

Significant figures (often abbreviated as sig figs) are the digits in a number that carry meaningful contributions to its measurement precision. They include all non-zero digits, zeros between non-zero digits, and zeros that are final or leading in certain contexts.

#### Rules for Significant Figures

- Non-zero digits are always significant.
- Example: 123.45 has 5 significant figures.

- Zeros between non-zero digits are significant.

Example: 1002 has 4 significant figures.

- Leading zeros (zeros before the first non-zero digit) are not significant; they merely indicate position.

Example: 0.0045 has 2 significant figures.

- Trailing zeros in a number with a decimal point are significant.

Example: 12.300 has 5 significant figures.

- Trailing zeros in a whole number without a decimal point may or may not be significant, depending on context. To avoid ambiguity, scientific notation is preferred.

### Why Are Significant Figures Important?

Using the correct number of significant figures ensures that the precision of calculations reflects the precision of measured or given data. It prevents overstatement of accuracy and maintains consistency across calculations.

---

### Step-by-Step Calculation: Adding 0.2126 and 0.7145

#### 1. Aligning Decimal Places

When adding decimal numbers, it's best to align the numbers according to their decimal points:

---

```
0.2126
+ 0.7145
---
```

#### 2. Performing the Addition

Starting from the rightmost digit:

- Hundred-thousandths place:  $6 + 5 = 11 \rightarrow$  Write 1, carry over 1.
- Ten-thousandths place:  $2 + 4 + 1$  (carry)  $= 7$ .
- Thousandths place:  $1 + 5 = 6$ .
- Hundredths place:  $2 + 1 = 3$ .
- Tenths place:  $0 + 0 = 0$ .

Putting it all together:

---

```
0.2126
+ 0.7145
-----
0.9271
---
```

The precise sum of the two numbers is 0.9271.

---

## Rounding to 3 Significant Figures

Having obtained the exact sum, the next step is to round this number to 3 significant figures.

### 1. Identifying Significant Figures in the Result

The number 0.9271 has four significant figures: the digits 9, 2, 7, and 1.

### 2. Applying Rounding Rules

- To round to 3 significant figures, look at the fourth digit, which is 1.
- Since 1 is less than 5, we do not increase the third digit (7).
- We truncate after the third significant digit.

### 3. Final Rounded Value

The rounded number is 0.927.

Note: The leading zeros before the 9 are not counted as significant figures. They serve only to position the decimal point.

---

## Why Does Rounding to Significant Figures Matter?

Proper rounding ensures that the final reported value accurately reflects the precision of the original data. In scientific and engineering contexts, reporting 0.927 instead of 0.9271 indicates that the measurement or calculation is accurate only up to three significant figures. Over-precision can imply false confidence, while under-precision might omit relevant detail.

---

## Additional Considerations in Rounding

While the example here is straightforward, real-world scenarios can involve more complex rules:

- Rounding in different contexts: For instance, in financial calculations, rounding rules may differ.
- Rounding in scientific notation: Expressing numbers in scientific notation helps clearly specify the level of precision.
- Rounding of results involving multiple operations: When multiple calculations are involved, it's generally best to retain extra digits during intermediate steps and round only after completing the final calculation.

---

## Practical Applications and Broader Implications

Understanding how to perform addition and correctly round to a specified number of significant figures has broad applications:

- Laboratory measurements: Ensuring reported results accurately reflect measurement precision.
- Engineering design: Calculating tolerances and safety margins.
- Data analysis: Maintaining consistency across datasets.
- Educational contexts: Teaching students the importance of precision and accuracy.

---

## Summary

Calculating the sum of 0.2126 and 0.7145 yields 0.9271. When rounded to 3 significant figures, the result becomes 0.927. This process underscores the importance of understanding significant figures and proper rounding rules to communicate measurements accurately and reliably.

In scientific practice, such meticulous attention to detail ensures that data remains meaningful, interpretable, and trustworthy. Whether dealing with simple decimal additions or complex multi-step calculations, grasping these fundamental concepts forms the backbone of precise quantitative work.

---

## Final Thoughts

Mastering the art of precise addition and appropriate rounding is essential for anyone involved in technical, scientific, or numerical work. By following logical steps—performing accurate calculations first, then applying the rules for significant figures—you can confidently communicate results that truly reflect the data's inherent precision. Remember, the goal is not just to get an answer, but to present it in a way that faithfully represents the original measurements and the context in which they are used.

## **[Find The Sum Of 0 2126 And 0 7145 Correct To 3 Significant Figures](#)**

Find The Sum Of 0 2126 And 0 7145 Correct To 3 Significant Figures

## **Related Articles**

- [I NEED A 100% ACCURATE ANSWER FOR THIS QUESTION ASAP NO LINKS !!!](#)
- [What Best Describes George Washington's Main Military Strategy?](#)
- [Pow-wow Singing Is Always In One Of Two Styles. What Are They?](#)

[Back to Home](#)