



Mod Operation

We can compute the mode in different ways that shown below

Case 1 :

If A is smaller than B, then the $R=A$

Example 1

If $A= 3$ and $B = 7$, find $A \bmod B$

Answer

$$3 \bmod 7 \rightarrow R=3$$

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Case 2 :

If A is equal to B, then the $R=0$

Example 2

If $A= 5$ and $B = 5$, find $A \bmod B$

Answer

$$\frac{5}{5} = 1.0$$

$$R \rightarrow 0$$

Example 3

If $A= 40$ and $B = 4$, find $A \bmod B$

Answer

$$\frac{40}{4} = 10.0$$

Case 3 :**If A is greater than B,**

then the R=

- Divide A by B
- Minus the correct number
- The remaining value is multiply by B

Example 4

If A = 9 and B = 4, find A mod B

Answer

- Divide A by B

$$\frac{9}{4} = 2.25$$

- Minus the correct number

$$2.25 - 2 = 0.25$$

- The remaining value is multiply by B

$$0.25 * 4 = 1 \rightarrow R=1$$

$$9 \bmod 4 = 1$$

Example 5

If A = 29 and B = 8, find A mod B

Answer

- Divide A by B

$$\frac{29}{8} = 3.625$$

- Minus the correct number

$$3.625 - 3 = 0.625$$

- The remaining value is multiply by B

$$0.625 * 8 = 5 \rightarrow R=5$$

$$29 \bmod 8 = 5$$

Example 6

If A = 129 and B = 13, find A mod B

Answer

- Divide A by B

$$\frac{129}{13} = 9.9230769 \dots \dots$$

- Minus the correct number

$$9.9230769 \dots \dots - 9 = 0.9230769 \dots \dots$$

- The remaining value is multiply by B

$$0.9230769 \dots \dots * 13 = 12 \rightarrow R=12$$

$$129 \bmod 13 = 12$$

Example 7

If A = 1166 and B = 29, find A mod B

Answer

- Divide A by B

$$\frac{1166}{29} = 40.20689655 \dots\dots$$

- Minus the correct number

$$40.20689655 \dots\dots - 40 = 0.20689655 \dots\dots$$

- The remaining value is multiply by B
 $0.20689655 \dots\dots * 29 = 6 \rightarrow R=6$

$$1166 \text{ mod } 29 = 6$$

Case 4:

If - A mod B

Example 8

If A = - 9 and B = 4, find A mod B

Answer

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- Divide A by B

$$\frac{9}{4} = 2.25$$

- Minus the correct number

$$2.25 - 2 = 0.25$$

- The remaining value is multiply by B

$$0.25 * 4 = 1$$

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ثم نجمعه مع الرقم المقسوم عليه (B)

$$-1 + 4 = 3 \rightarrow R=3$$

$$-9 \bmod 4 = 3$$

Example 9

If A = - 129 and B = 13, find A mod B

Answer

- Divide A by B

$$\frac{129}{13} = 9.9230769 \dots\dots$$

- Minus the correct number

$$9.9230769 \dots\dots - 9 = 0.9230769 \dots\dots$$

- The remaining value is multiply by B

$$0.9230769 \dots\dots * 13 = 12$$

نضع الاشارة السالبة للرقم الذي تم الحصول عليه
ثم نجمعه مع الرقم المقسوم عليه (B)

$$-12 + 13 = 1 \rightarrow R = 1$$