

Ejercicios Aritmética Modular

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Calcule los mínimos residuos de los siguientes enteros mod 10

1. $6 + 4 \bmod 10$

$$10 \cong 0 \bmod 10$$

2. $14 - 7 \bmod 10$

$$14 - 7 \bmod 10$$

$$7 \cong 7 \bmod 10$$

3. $13 - 15 \bmod 10$

$$13 \cong 3 \bmod 10$$

$$15 \cong 5 \bmod 10$$

$$13 - 15 \cong 3 - 5 \bmod 10$$

$$13 - 15 \cong -2 \bmod 10$$

$$-2 = -10 + 8$$

$$-13 - 15 \cong 8 \bmod 10$$

4. $-21 - 27 \bmod 10$

$$21 \cong 1 \bmod 10$$

$$17 \cong 7 \bmod 10$$

$$-21 - 17 \cong -8 \bmod 10$$

$$-8 = -10 + 2$$

$$-21 - 17 \cong 2 \bmod 10$$

5. $101 + 11 + 1 \bmod 10$

$$101 \bmod 10$$

$$100 \cong 0 \bmod 10$$

$$1 \cong 1 \bmod 10$$

$$100 + 1 \cong 0 + 1 \bmod 10$$

$$11 \bmod 10$$

$$\begin{aligned}
10 &+ 1 \bmod 10 \\
10 &\cong 0 \bmod 10 \\
1 &\cong 1 \bmod 10 \\
10 + 1 &\cong 0 + 1 \bmod 10 \\
1 &\bmod 10 = 1 \\
101 + 11 + 1 &\cong 1 + 1 + 1 \bmod 10 \\
101 + 11 + 1 &\cong 3 \bmod 10
\end{aligned}$$

6. $101 - 11 - 1 \bmod 10$

$$\begin{aligned}
100 - 11 &\bmod 10 \\
100 &\cong 0 \bmod 10 \\
11 &\cong 1 \bmod 10 \\
100 - 11 &\cong 0 - 1 = -1 \bmod 10 \\
-1 &= -10 + 9 \\
100 - 11 &\cong 9 \bmod 10
\end{aligned}$$