Find the least number which when divided by 12, 27 and 35 leaves 6 as a remainder?

To find the least number that, when divided by 12, 27, and 35, leaves a remainder of 6, we can follow these steps:

Adjust the divisors: Since the number leaves a remainder of 6, we can express the desired number (N) as: [$N = k \cdot \text{lcm}(12, 27, 35) + 6$] where (k) is a non-negative integer.

Calculate the least common multiple (LCM):

Prime factorization:

($12 = 2^2 \times 3^1$)

($27 = 3^3$)

($35 = 5^1 \times 7^1$)

LCM is found by taking the highest power of each prime: $$\text{lcm}(12, 27, 35) = 2^2 \times 3^3 \times 5^1 \times 7^1$$

Calculating the LCM: $$\text{lcm}(12, 27, 35) = 4 \times 27 \times 5 \times 7$$

First, calculate $4 \times 27 = 108$

Then, $108 \times 5 = 540$

Finally, $540 \times 7 = 3780$

So, $\text{lcm}(12, 27, 35) = 3780$.

Finding the least number: $$N = k \cdot 3780 + 6$$ The smallest value for k is 1: $$N = 1 \cdot 3780 + 6 = 3786$$

Thus, the least number which, when divided by 12, 27, and 35, leaves a remainder of 6 is 3786.