① Find GCD and LCM of 12 and 18:

GCD Calculation: Use Euclidian Algorithm

$$GCD(a,b) = GCD(b, a \bmod b)$$

GCD(large #, small #)

$$GCD(18,12) = GCD(12, 18 \bmod 12) = GCD(12,6)$$
$$GCD(12,6) = GCD(6, 12 \bmod 6) = GCD(6,0) = 6$$
$$\boxed{GCD(12,18) = 6}$$

LCM Calculation: Use LCM formula that uses GCD:

$$LCM(a,b) = (a \times b) / GCD(a,b)$$
$$LCM(12,18) = (12 \cdot 18) / GCD(12,18)$$
$$= 216 / 6$$
$$\boxed{LCM(12,18) = 36}$$

Result:

$$\boxed{GCD = 6 \qquad LCM = 36}$$

② Find GCF and LCM of 8 and 12

GCD:

$$GCD(a,b) = GCD(b, a \bmod b) \text{ until } a \bmod b = 0$$
GCD(larger #, smaller #) — communicative

$$GCD(12,8) = GCD(8, 12 \bmod 8) = GCD(8,4)$$
$$GCD(8,4) = GCF(4, 8 \bmod 4) = GCD(4,0) = 4$$
$$GCD(8,12) = 4$$

LCM:

$$LCM(a,b) = (a \times b) / GCD(a,b)$$
$$LCM(8,12) = (8 \times 12) / (GCD(8,12))$$
$$= 96 / 4$$
$$LCM(8,12) = 24$$

$$\boxed{GCD = 4 \qquad LCM = 24}$$

③ Find GCD and LCM of 14, 21, and 28

Step 1: Compute GCD for 2 numbers (14 and 21):
- $GCD(21,14) = GCD(14, 21 \bmod 14) = GCD(14,7)$
$$GCD(14,7) = GCD(7, 14 \bmod 7) = GCD(7,0)$$
$$GCD(14,21) = 7$$

Step 2: Compute GCD for the result of the first GCD calculation and the third number (7, 28) to get final GCD:
- $GCD(28,7) = GCD(7, 28 \bmod 7) = GCD(7,0) = 7$
$$\boxed{GCD(14,21,28) = 7}$$

Step 3: Compute LCM for two numbers (14 and 21):
- $LCM(14,21) = (14 \cdot 21) / GCD(14,21,28)$
$$= 294 / 7$$
$$LCM(14,21) = 42$$

Step 4: Compute GCD and LCM with result from Step 3 and the third number (42, 28)
- $GCD(42, 28)$.
$$42 \bmod 28 = 14 \longrightarrow 28 \bmod 14 = 0$$
$$GCD(42,28) = 14$$
- $LCM(42, 28):$
$$LCM(42,28) = (42 \times 28) / GCD(42,28)$$
$$= 1176 / 14$$
$$\boxed{LCM(42,28) = 84}$$

$$\boxed{GCD = 7 \qquad LCM = 84}$$