Problem

Which of the following pairs of numbers are relatively prime? Show the calculations that led to your conclusions.

a. 1274 and 10505

b. 7289 and 8029

Step-by-step solution

Step 1 of 3

Relative prime or not

Relative prime: Two integers are said to be relative prime if only if common factor between them is 1. That is greatest common divisor (GCD) is 1.

Comment

Step 2 of 3

(a)

The pair of numbers 1274 and 10505 are relatively prime.

Explanation:

Take first $1274 = 2 \times 7 \times 7 \times 13 \times 1$.

Next take $10505 = 5 \times 11 \times 191 \times 1$.

Now observed, the common factor between 1274 and 10505 is 1.

That is, $GCD(1274, 10505) = 1$.

From the definition of relative prime, the GCD must have 1. Here GCD is 1.

So, the pair numbers 1274 and 10505 are relative prime.

Comment

Step 3 of 3

(b)

The pair of numbers 7289 and 8029 are not relatively prime.

Explanation:

Take first $7289 = 37 \times 197 \times 1$.

Next take $8029 = 7 \times 31 \times 37 \times 1$.

Now observed, the common factors between 7289 and 8029 are 37 and 1.

Hence $GCD(7289, 8029) = 37$

From the definition of relative prime, the GCD must have 1. Here GCD is not equal to 1.

So, the pair numbers 7289 and 8029 are not relatively prime.

Comment