Linear dependency of ordered pairs related to prime numbers

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If I have the ordered pairs (x,y) such that x has to be even and y = x-7, the next x - the previous one plus the previous y is equal to the next y, the ordered pairs are 41 from 12 to 384 for x and 5 to 377 what can these ordered pairs be? If I know that a number of this ordered pair the last y-the first y plus the first x is equal to the last y and the last y is 377 and the last x is 7 more than the last y, what will be the possible numbers for the first x and the first y?

Establishing a linear dependence relationship from prime numbers can be quite interesting, but not necessarily a "mathematical discovery" in the strict sense, depending on the context. Let me explain:

Prime numbers are independent by nature: They do not obey a standard divisibility relation between themselves, which makes them an "independent" set in essence. Therefore, finding a linear dependence involving primes would require some kind of specific framework or context.

Mathematical context: If you find a linearly dependent relation involving primes within a specific scenario, such as a matrix or a vector space constructed with prime numbers, this can be considered an interesting result, especially if the relation reveals unexpected patterns.

Common or rare? Generally, for arbitrary (non-prime) numbers, linear dependences may arise more frequently in large sets. However, if you create a system exclusively with prime numbers and establish this relation, it would be less common due to the unique characteristic of primes.

Ordered pairs that obey rule1 = {

{20, 12, 5, 13},

{26, 20, 13, 19},

{30, 26, 19, 23},

{42, 30, 23, 35},

{44, 42, 35, 37},

{56, 44, 37, 49},

{86, 56, 49, 79},

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{102, 86, 79, 95},
{104, 102, 95, 97}
};
(* Define matrices *)
matrixA = {
  {20, 12, 5, 13},
  {26, 20, 13, 19},
  {30, 26, 19, 23},
  {42, 30, 23, 35}
};

matrixB = {
  {44, 42, 35, 37},
  {56, 44, 37, 49},
  {86, 56, 49, 79},
  {102, 86, 79, 95}
};

(* Matrix multiplication *)
result = matrixA . matrixB;

(* Output result *)
result

  {{3308, 2766, 2416, 2958}, {5320, 4334, 3788, 4774}, {6756, 5446,
  4760, 6070}, {9076, 7382, 6472, 8166}}

matrix = {
  {3308, 2766, 2416, 2958},
  {5320, 4334, 3788, 4774},
  {6756, 5446, 4760, 6070},
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  {9076, 7382, 6472, 8166}
};
Dimensions[matrix]
determinant = Det[matrix]
{4, 4}

0
(* Define the matrix with X as a variable *)
M = {
  {3308, 2766, 2416, 2958},
  {5320, 4334, 3788, 4774},
  {6756, 5446, 4760, 6070},
  {X, 7382, 6472, 8166}
};

(* Compute the determinant and solve for X *)
detEquation = Det[M] == 0;
solutionX = Solve[detEquation, X]

(* Output the values of X *)
SolutionX
{{X -> 9076}}

(* Define matrices *)
matrixA = {
  {20, 12, 5, 13},
  {26, 20, 13, 19},
  {30, 26, 19, 23},
  {42, 30, 23, 35}
};
```

```
matrixB = {
  {44, 42, 35, 37},
  {56, 44, 37, 49},
  {86, 56, 49, 79},
  {x, 86, 79, 95}
};

(* Resultant matrix *)
resultMatrix = {
  {3308, 2766, 2416, 2958},
  {5320, 4334, 3788, 4774},
  {6756, 5446, 4760, 6070},
  {9076, 7382, 6472, 8166}
};

(* Solve for x *)
equation = 42*44 + 30*56 + 23*86 + 35*x == resultMatrix[[4, 1]];
solution = Solve[equation, x]

(* Output the value of x *)
xValue = x /. solution[[1]]
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{{x -> 102}}
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102
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