Yet anohter pattern in the ordered pairs that give a prime number...

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Let's examine the relationship between the given sequence and the odd numbers in the ordered pairs. Given Sequence:

The sequence is:

{5,8,9,8,5,0,−7,−16,−27,−40,−55,−72,−91,−112,−135,−160,−187,−216,−247,−280,−315,−352,−391,−432,−475,−520,−567,−616,−667}\{5, 8, 9, 8, 5, 0, -7, -16, -27, -40, -55, -72, -91, -112, -135, -160, -187, -216, -247, -280, -315, -352, -391, -432, -475, -520, -567, -616, -667\}

Ordered Pairs:

The ordered pairs are:

{{12,5},{20,13},{26,19},{30,23},{42,35},{44,37},{56,49},{86,79},{102,95},{104,97},{110,103},{132,125},{146,139},{152,145},{162,155},{174,167},{180,173},{182,175},{186,179},{194,187},{204,197},{210,203},{216,209},{240,233},{254,247},{260,253},{264,257},{272,265},{284,277}}\{ \{12, 5\}, \{20, 13\}, \{26, 19\}, \{30, 23\}, \{42, 35\}, \{44, 37\}, \{56, 49\}, \{86, 79\}, \{102, 95\}, \{104, 97\}, \{110, 103\} , \{132, 125\}, \{146, 139\}, \{152, 145\}, \{162, 155\}, \{174, 167\}, \{180, 173\}, \{182, 175\}, \{186, 179\}, \{194, 187\}, \{204, 197\}, \{210, 203\}, \{216, 209\}, \{240, 233\}, \{254, 247\}, \{260, 253\}, \{264, 257\}, \{272, 265\}, \{284, 277\} \}

Odd Numbers in Ordered Pairs:

The list of odd numbers in ordered pairs is:

{5,13,19,23,35,37,49,79,95,97,103,125,139,145,155,167,173,175,179,187,197,203,209,233,247,253,257,265,277}\{5, 13, 19, 23, 35, 37, 49, 79, 95, 97, 103, 125, 139, 145, 155, 167, 173, 175, 179, 187, 197, 203, 209, 233, 247, 253, 257, 265, 277\}

Relationship with the Sequence:

We can check the given sequence and compare it with the differences between the odd numbers in the ordered pairs. Let's calculate the differences:

mathematica

(* List of odd numbers in the ordered pairs *)

odd = {5, 13, 19, 23, 35, 37, 49, 79, 95, 97, 103, 125, 139, 145, 155, 167, 173, 175, 179, 187, 197, 203, 209, 233, 247, 253, 257, 265, 277};

(* Calculate differences *)

differences = Differences[odd]

(* Display differences *)

differences

Calculated Differences:

When running the code, the differences are:

{8,6,4,12,2,12,30,16,2,6,22,14,6,10,12,6,2,4,8,10,6,6,24,14,6,4,8,12}\{8, 6, 4, 12, 2, 12, 30, 16, 2, 6, 22, 14, 6, 10, 12, 6, 2, 4, 8, 10, 6, 6, 24, 14, 6, 4, 8, 12\}

We can see that the differences do not correspond directly to the given sequence, but the values can be related to some specific operation on the odd numbers of the ordered pairs.

The cumulative sum of the result of the differences +5 is equal to the second number of the ordered pairs