Number Average

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This is another simple problem from the 2025 Math Calendar ([1]).

The sum of x consecutive numbers is 529. Their average is x. What is x?

For a bonus problem, not included in the calendar, what is the sequence of numbers?

Solution

For the original Math Calendar problem we have

$$529/x = x \quad \text{or} \quad x^2 = 529.$$

Therefore, $x = 23$.

For the sum of the consecutive sequence of numbers we have, for some whole number n,

$$(n + 1) + (n + 2) + (n + 3) + \ldots + (n + x) = xn + x(x + 1)/2 = x^2$$

Therefore $x^2 = (2n + 1)x$

or $2n + 1 = x = 23$

So $n = 11$

and the sequence of numbers is 12, 13, 14, …, 34

References

[1] Rapoport, Rebecca and Dean Chung, *Mathematics 2025: Your Daily epsilon of Math*, American Mathematical Society, 2025. January