

High School, CIM benchmark—Algebraic Relations

Core Math: Sequences and Series. Using patterns and sequences to make predictions. Using patterns to determine an appropriate series which can then be extended to more complex problems.

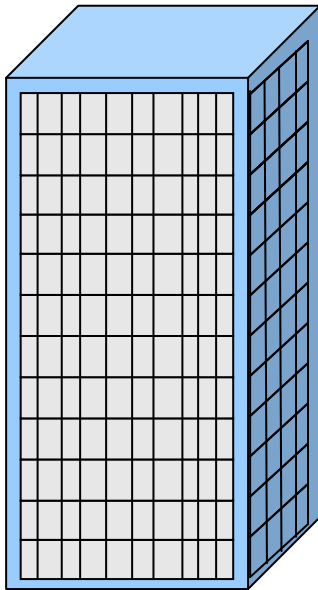
Context: Algebra 1—during unit on patterns and writing algebraic equations, Algebra 2—during unit on sequences and series.

## Skyscraper Windows

### Task 1

You are the manager of the Milwaukie Skyscraper building. This building is 12 stories high and is covered entirely by windows on all 4 sides. Once a year, all of the windows are washed. The cost for washing the windows is \$2.00 for each 1<sup>st</sup> floor window, \$2.50 for each 2<sup>nd</sup> floor window, \$3.00 for each 3<sup>rd</sup> floor window and so on. You have budgeted \$2500 for the window washing for the next year. Will this be enough or too much? How much are you off by (over or under)?

Note: Each floor has 38 windows.



### Task 2:

Once you have an answer, look for an easier way to find it. What is it? Describe or show this method.

Task 3:

Now suppose the building is 30 stories tall and you have a budget of \$40,000. Is that enough? How much are you off by (over or under)?

\*adapted from Fostering Algebraic Thinking by Mark Driscoll