Lesson 22: Average Rate of Change

Exit Ticket

A container in the shape of a square base pyramid has a height of 5 ft. and a base length of 5 ft., as shown. Water flows into the container (in its inverted position) at a constant rate of 4 ft$^3$ per minute. Calculate how many minutes it would take to fill the cone at 1 ft. intervals. Organize your data in the table below.

\[
\begin{array}{|c|c|c|c|}
\hline
\text{Water Level (in feet)} & \text{Area of Base (in feet}^2) & \text{Volume (in feet}^3) & \text{Time (in minutes)} \\
\hline
1 & & & \\
2 & & & \\
3 & & & \\
4 & & & \\
5 & & & \\
\hline
\end{array}
\]

a. How long will it take to fill up the container?

b. Show that the water level is not rising at a constant rate. Explain.