Forecast factory worksheet

\[
T_{future} = T - \left( \frac{\Delta t}{\Delta x} \times \left\{ (u \times [T - T_{west}]) + (v \times [T_{north} - T]) \right\} \right)
\]

**Constants:** Time-step (\(\Delta t\)) = 3600s, Grid-spacing (\(\Delta x\)) = 100,000m (100km)

\(T\) is the temperature at your location at the current time

My grid box number is: __________

**TIMESTEP 1**

\[
\frac{\Delta t}{\Delta x} = A
\]

\[
u \times (T - T_{west}) = B
\]

\[
v \times (T_{north} - T) = C
\]

\[
T - \{ A \times (B + C) \} = T_{future}
\]

**TIMESTEP 2**

\[
\frac{\Delta t}{\Delta x} = A
\]

\[
u \times (T - T_{west}) = B
\]

\[
v \times (T_{north} - T) = C
\]

\[
T - \{ A \times (B + C) \} = T_{future}
\]
TIMESTEP 3

\[
\begin{align*}
\frac{\Delta t}{\Delta x} & = A \\
u \times (T - \text{west}) & = B \\
v \times (T_{\text{north}} - T) & = C \\
T - \{A \times (B + C)\} & = T_{\text{future}}
\end{align*}
\]

TIMESTEP 4

\[
\begin{align*}
\frac{\Delta t}{\Delta x} & = A \\
u \times (T - \text{west}) & = B \\
v \times (T_{\text{north}} - T) & = C \\
T - \{A \times (B + C)\} & = T_{\text{future}}
\end{align*}
\]