Problem
At 7:00 a.m., Sahil drives north at 48 km/h. At the same time from the same intersection, Brenda drives west at 64 km/h. At what time will they be 260 km apart?

Solution
Let \( t \) be the length of time, in hours, that Sahil and Brenda travel until they are 260 km apart. Since Sahil is travelling at 48 km/h, he will travel \( 48t \) km in \( t \) hours. Since Brenda is travelling at 64 km/h, she will travel \( 64t \) km in \( t \) hours.

Since Sahil is travelling north and Brenda is travelling west, they are travelling at right angles to each other. We can represent the distances on the following right triangle.

\[
\begin{align*}
260 & \quad 48t \\
64t & \quad 64 \quad 48t
\end{align*}
\]

Using the Pythagorean Theorem
\[
(48t)^2 + (64t)^2 = 260^2
\]
\[
2304t^2 + 4096t^2 = 67600
\]
\[
6400t^2 = 67600
\]
\[
16t^2 = 169
\]
\[
t^2 = \frac{169}{16}
\]

Since \( t > 0 \), \( t = \frac{13}{4} = 3.25 \), which is equivalent to 3 hours and 15 minutes.
Then \( 48t = 48 \times \frac{13}{4} = 156 \) and \( 64t = 64 \times \frac{13}{4} = 208 \). Also, 3 h 15 min after 7:00 a.m. is 10:15 a.m.

Therefore at 10:15 a.m. Sahil and Brenda are 260 km apart. Sahil has travelled 156 km and Brenda has travelled 208 km.