Car A starts from rest and accelerates 2.50 $\frac{ft}{s^2}$.

Car B starts from rest from the same position 2.00s after car A and catches up with car A 90s after car A starts.

(a) How far from the starting point does car B catch car A?

Equations of motion:
\[
\begin{align*}
\chi_A &= \frac{1}{2} a_A t^2, \\
\chi_B &= \frac{1}{2} a_B (t-2)^2; \quad t \geq 2.
\end{align*}
\]

Car A has been going 90s when car B catches up.

\[
\chi_A = \frac{1}{2} (2.50 \times \frac{ft}{s^2}) (90s)^2 = 1.01 \times 10^4 \text{ ft}.
\]

(b) What is the acceleration of car B?

\[
\chi_B = 1.01 \times 10^4 \text{ ft} \quad \text{after} \quad 90 \text{ secs}.
\]

\[
1.01 \times 10^4 \text{ ft} = \frac{1}{2} a_B (90s-2s)^2
\]

\[
\Rightarrow a_B = \frac{2(1.01 \times 10^4) \text{ ft}}{(88s)^2} = 2.61 \frac{\text{ft}}{s^2}.
\]