WEBASSIGN MOTION

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You must know (memorize) the following formulas to be able to answer this question.

$v = at + v_0$ (v_0 represents velocity at time zero)

$x = \frac{1}{2}at^2 + v_0t + x_0$ (v_0 and x_0 represents velocity and position at time zero, respectively)

For this question you want to know when the positions of the vehicles are the same. (position of automobile = position of truck)

$$\begin{aligned}
\frac{1}{2} \times 1.9^{m}/_{s^2} \times t^2 + 0^{m}/_{s} \times t + 0 &= \frac{1}{2} \times 0^{m}/_{s^2} + 9.4^{m}/_{s} \times t + 0 \\
\frac{1}{2} \times 1.9^{m}/_{s^2} \times t^2 &= 9.4^{m}/_{s} \times t \\
(assume\, t \neq 0) & \quad (assume\, t \neq 0) \\
\frac{1}{2} \times 1.9^{m}/_{s^2} \times t &= 9.4^{m}/_{s} \\
t &\approx 9.8947s
\end{aligned}$$

You can assume $t \neq 0$ because we know that the positions of the vehicles are the same at $t = 0$; that's not what we're looking for.

A. We know that $t \approx 9.8947s$ and that $v = 9.4^{m}/_{s}$ (velocity of the truck).

Therefore, $9.8947s \times 9.4^{m}/_{s} \approx 93.011m$ (it's obviously the same for both the automobile and the truck).

B.

$$\begin{aligned}
v &= at + v_0 \\
v &\approx 1.9^{m}/_{s^2} \times 9.8947s + 0^{m}/_{s} \\
v &\approx 1.9^{m}/_{s^2} \times 9.8947s \\
v &= 18.8^{m}/_{s}
\end{aligned}$$