Lesson 5: Solving Any Linear Equation

Cool Down: Check It

Noah wanted to check his solution of $x = \frac{14}{5}$ for the equation $\frac{1}{2}(7x - 6) = 6x - 10$. Substituting $\frac{14}{5}$ for x, he writes the following:

$$\begin{aligned}
\tfrac{1}{2}\left(7\left(\tfrac{14}{5}\right) - 6\right) &= 6\left(\tfrac{14}{5}\right) - 10 \\
\left(7\left(\tfrac{14}{5}\right) - 6\right) &= 12\left(\tfrac{14}{5}\right) - 20 \\
5\left(7\left(\tfrac{14}{5}\right) - 6\right) &= 5\left(12\left(\tfrac{14}{5}\right) - 20\right) \\
7 \cdot 14 - 6 &= 12 \cdot 14 - 20 \\
98 - 6 &= 168 - 20 \\
92 &= 148
\end{aligned}$$

Find the incorrect step in Noah's work and explain why it is incorrect.