Exercise 4.12

From $A_{50:20|1} = A_{50:20|1} + 20E_{50}$, we can express $20E_{50} = A_{50:20|1} - A_{50:20|1}$ and

$$
A_{50} = A_{50:20|1} + 20E_{50} = A_{50:20|1} + (A_{50:20|1} - A_{50:20|1}) A_{70}.
$$

Solving for $A_{70}$, we get

$$
A_{70} = \frac{A_{50} - A_{50:20|1}}{A_{50:20|1} - A_{50:20|1}} = \frac{0.31266 - 0.14996}{0.42247 - 0.14996} = 0.5970423.
$$