

**Exercise 5.3**

Since we know that

$$\ddot{a}_{50:\overline{10}|} = 1 + a_{50:\overline{10}|} - v^{10} {}_{10}p_{50},$$

then it follows that

$$\begin{aligned} v^{10} &= \frac{1 + a_{50:\overline{10}|} - \ddot{a}_{50:\overline{10}|}}{{}_{10}p_{50}} \\ &= \frac{1 + 7.8277 - 8.2066}{0.9195} \\ &= 0.6754758. \end{aligned}$$

Thus,  $i = (0.6754658)^{-1/10} - 1 = 0.0400136 = 4.00136\%$ .