Assignment 3

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Contents

1 1. Attribute-specific value functions

The value functions are as follows:

$$v_1(x_1) = \frac{1}{40}x_1 \tag{1}$$

$$v_2(x_2) = \begin{cases} 0, & 0 \le x_2 \le 2 \\ \frac{1}{12}x_2 - \frac{1}{6}, & 2 \le x_2 < 6 \\ \frac{1}{27}x_2 + \frac{1}{9}, & 6 \le x_2 < 15 \\ \frac{1}{45}x_2 + \frac{1}{3}, & 15 \le x_2 \le 30 \end{cases} \tag{2}$$

$$v_3(x_3) = \begin{cases} \frac{1}{14}x_3 - \frac{1}{7} & 2 \le x < 9 \\ \frac{1}{42}x_3 + \frac{2}{7} & 9 \le x \le 30 \end{cases} \tag{3}$$

$$v_4(x_4) = \frac{1}{18}x_4 - \frac{1}{9} \tag{4}$$

$$v_5(x_5) = \frac{1}{20}x_5 \tag{5}$$

$$v_6(x_6) = \frac{1}{20}x_6 \tag{6}$$

$$v_7(x_7) = \frac{1}{100}x_7 \tag{7}$$

$$v_8(x_8) = \begin{cases} \frac{1024}{1023}\left(1 - 2^{-x_8}\right) & 0 \le x_8 < 10 \\ 1 & 10 \le x_8 \end{cases} \tag{8}$$

$$v_9(x_9) = \begin{cases} \frac{1}{4}(1-\sqrt{5})\left(1 - \left(\frac{1}{2}\left(1+\sqrt{5}\right)\right)^{3-x_9}\right) & 0 \le x_9 < 3 \\ 0 & 3 \le x_9 \end{cases} \tag{9}$$