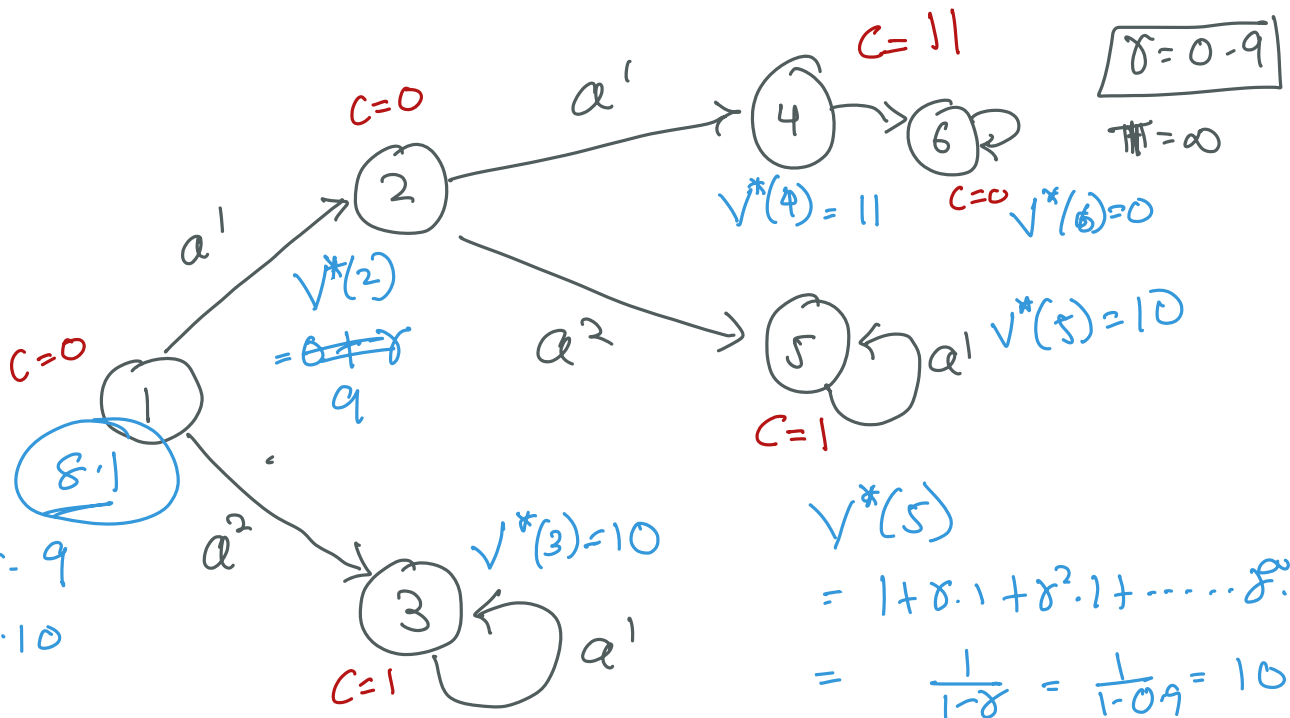


What is the optimal action at state 1?

What is the optimal value $V^*(1)$?



$$\begin{cases} 0 + \gamma \cdot 9 \\ 0 + \gamma \cdot 10 \end{cases}$$

Bellman Eq

$$V^*(s) = \min_a \left[c(s,a) + \gamma \sum_{s' \in T(s,a)} V^*(s') \right]$$

$$V^*(2) = \begin{cases} \xrightarrow{a^1} & 0 + \gamma \cdot 11 \\ \xrightarrow{a^2} & 0 + \gamma \cdot 10 \end{cases} \left. \begin{array}{l} \\ \text{min} \end{array} \right\} = \gamma \cdot 10 = 9$$

$$\begin{aligned} V^*(5) &= 1 + \gamma \cdot 1 + \gamma^2 \cdot 1 + \dots + \gamma^{\infty} \\ &= \frac{1}{1-\gamma} = \frac{1}{1-0.9} = 10 \end{aligned}$$

$$\begin{aligned} V^*(5) &= 1 + \gamma V^*(5) \\ V^*(5) &= \frac{1}{1-\gamma} \end{aligned}$$