

This handout includes space for every question that requires a written response. Please feel free to use it to handwrite your solutions (legibly, please). If you choose to typeset your solutions, the | README.md | for this assignment includes instructions to regenerate this handout with your typeset \LaTeX solutions.

1.a

1.b

1.c

$$\begin{aligned}
V^\pi(s_0) - V^{\pi'}(s_0) &= \mathbb{E}_{\tau \sim \rho^\pi} \left[\sum_{t=0}^{\infty} \gamma^t \mathcal{R}(s_t, a_t) \right] - V^{\pi'}(s_0) \\
&= \mathbb{E}_{\tau \sim \rho^\pi} \left[\sum_{t=0}^{\infty} \gamma^t \left(\mathcal{R}(s_t, a_t) + V^{\pi'}(s_t) - V^{\pi'}(s_t) \right) \right] - V^{\pi'}(s_0) \\
&= \mathbb{E}_{\tau \sim \rho^\pi} \left[\sum_{t=0}^{\infty} \gamma^t \left(\mathcal{R}(s_t, a_t) + \gamma V^{\pi'}(s_{t+1}) - V^{\pi'}(s_t) \right) \right]
\end{aligned}$$

2.a

3.b

5.a