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