Congratulations! You passed!

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1. What is the target policy in Q-learning? **1 / 1 point**

- ϵ-greedy with respect to the current action-value estimates
- Greedy with respect to the current action-value estimates

Correct
Correct! Q-learning's target policy is greedy with respect to the current action-value estimates.

2. Which Bellman equation is the basis for the Q-learning update? **1 / 1 point**

- Bellman equation for state values
- Bellman equation for action values
- Bellman optimality equation for state values
- Bellman optimality equation for action values

Correct
Correct! The Q-learning update is based on the Bellman optimality equation for action values.

3. Which Bellman equation is the basis for the Sarsa update? **0 / 1 point**

- Bellman equation for state values
- Bellman equation for action values

- ○ Bellman optimality equation for state values
- ○ Bellman optimality equation for action values

⊗ **Incorrect**
You didn't select an answer.

4. Which Bellman equation is the basis for the Expected Sarsa update? **1 / 1 point**

- ○ Bellman equation for state values
- ◉ Bellman equation for action values
- ○ Bellman optimality equation for state values
- ○ Bellman optimality equation for action values

✓ **Correct**
Correct! The Expected Sarsa update is based on the Bellman equation for action values.

5. Which algorithm's update requires more computation per step? **1 / 1 point**

- ◉ Expected Sarsa
- ○ Sarsa

✓ **Correct**
Correct! Expected Sarsa computes the expectation over next actions.

6. Which algorithm has a higher variance target? **1 / 1 point**

- ○ Expected Sarsa
- ◉ Sarsa

✓ **Correct**
Correct! We saw that Sarsa was more sensitive to the choice of step-size because its target has higher variance.

7. Q-learning does not learn about the outcomes of exploratory actions. **1 / 1 point**

- (●) True
- ( ) False

✓ **Correct**
Correct! The update in Q-learning only learns about the greedy action. As demonstrated in Cliff World, it ignores the outcomes of exploratory actions.

8. Sarsa, Q-learning, and Expected Sarsa have similar targets on a transition to a terminal state. **1 / 1 point**

- (●) True
- ( ) False

✓ **Correct**
Correct! The target in this case only depends on the reward.

9. Sarsa needs to wait until the end of an episode before performing its update. **1 / 1 point**

- ( ) True
- (●) False

✓ **Correct**
Correct! Unlike Monte Carlo methods, Sarsa performs its updates at every time-step using the reward and the next action-value estimate.