## Try again once you are ready

Grade received 75% | Latest Submission Grade 75% | To pass 80% or higher

Try again

**1.** A junior data analyst uses tree-based learning for a sales and marketing project. Currently, they are interested in the section of the tree that represents where the first decision is made. What are they examining? **1 / 1 point**

- ○ Splits
- ○ Branches
- ○ Leaves
- ◉ Roots

Correct

**2.** Which of the following statements accurately describe decision trees? Select all that apply. **0.5 / 1 point**

- ☑ Decision trees require no assumptions regarding the distribution of underlying data.

Correct

- ☑ Decision trees are equally effective at predicting both existing and new data.

This should not be selected
Review the video about tree-based modeling.

- ☑ Decision trees are susceptible to overfitting.

Correct

- ☐ Decision trees work by sorting data.

**3.** What is the only section of a decision tree that contains no predecessors? **1 / 1 point**

- ◉ Root node
- ○ Leaf node
- ○ Decision node
- ○ Split based on what will provide the most predictive power.

Correct

**4.** In a decision tree model, which hyperparameter sets the threshold below which nodes become leaves? **0 / 1 point**

- ◉ Min samples leaf
- ○ Min samples split
- ○ Min child weight
- ○ Min samples tree

Incorrect
Review the video about tuning a decision tree.

**5.** When might you use a separate validation dataset? Select all that apply. **1 / 1 point**

- ☑ If you want to choose the specific samples used to validate the model.

Correct

- ☑ If you have a very large amount of data.

Correct

- ☑ If you want to compare different model scores to choose a champion before predicting on test holdout data.

Correct

- [ ] If you have very little data.

**6.** Which of the following statements correctly describe ensemble learning? Select all that apply. **0.75 / 1 point**

- [ ] When building an ensemble using different types of models, each should be trained on completely different data.
- [ ] Predictions using an ensemble of models can be accurate even when the individual models are barely more accurate than a random guess.
- [x] Ensemble learning involves aggregating the outputs of multiple models to make a final prediction.

  ✓ **Correct**

- [x] If a base learner's prediction is only slightly better than a random guess, it is called a "weak learner."

  ✓ **Correct**

  You didn't select all the correct answers

**7.** Fill in the blank: A random forest is an ensemble of decision-tree _____ that are trained on bootstrapped data. **1 / 1 point**

- ○ observations
- ◉ base learners
- ○ variables
- ○ statements

✓ **Correct**

**8.** What are some benefits of boosting? Select all that apply. **0.5 / 1 point**

- [x] Boosting is the most interpretable model methodology.

  ✗ **This should not be selected**
  Review the video that introduces boosting.

- [ ] Boosting does not require the data to be scaled.
- [x] Boosting is a powerful predictive methodology.

  ✓ **Correct**

- [x] Boosting can handle both numeric and categorical features.

  ✓ **Correct**

**9.** Which of the following statements correctly describe gradient boosting? Select all that apply. **1 / 1 point**

- [x] Gradient boosting machines can be difficult to interpret.

  ✓ **Correct**

- [x] Gradient boosting machines have difficulty with extrapolation.

  ✓ **Correct**

- [ ] Gradient boosting models can be trained in parallel.
- [x] Each base learner in the sequence is built to predict the residual errors of the model that preceded it.

  ✓ **Correct**