**1. Which impurity heuristic (Entropy/Variance) yields the best classification accuracy? How does increasing the number of examples and/or the number of clauses impact the (accuracy of the) two impurity heuristics. Explain your answer.**

The entropy heuristic seems to give slightly better accuracy on these datasets. The accuracy for both the techniques seems to increase as the number of clauses and training data increases.

**2. Which overfitting avoidance method (reduced error pruning/ depth-based pruning) yields the best accuracy? Again, how does increasing the number of examples and/or the number of clauses impact the (accuracy of the) two overfitting avoidance methods. Explain your answer.**

The reduced error pruning is a better method according to the data because it removes one node at a time and there is better chance of finding a combination of nodes that when removed yield a better accuracy. Whereas in depth-based pruning, all the nodes at a particular level are pruned which seems inefficient for a given list of depths to choose the hyperparameter from. As the number of examples increase the accuracy increases.   
As the number of clauses increase, the accuracy of both the pruning seem to increase more the number of clauses means there are more branches that the data can be classified into and which results into more purity.  
The naïve tree is classifying better as the clauses increase.

**3. Are random forests much better in terms of classification accuracy than your decision tree learners? Why? Explain your answer.**

The random forest classifiers are much better than the decision tree classifiers because they are essentially a combination of a number of decision trees that compute the class of an instance and then vote on the best classification