a.

For a KNN model that utilizes euclidean distance measurements, k=1, and with a mean aggregator, and considering the data points (1,1) and (2,2), then y3 could be predicted as y3 = 2. This is due to the average value of x3 closest neighbor: x2. Thus, the predicted target value would be 2, if these are the only two points within the data set. Yet, having multiple data points doesn't matter, there is no average being computed, since we are only looking for the nearest neighbor's value.

b.

For a linear regression model of degree 1 that ought to fit this data, the prediction for y3 would be y3 = 100. This is because a linear regression model fits a line to the data set and assumes a linear relationship with a specific slope. The line in this case would have a slope of 1, due to our two data points, which is the increase in y for each increase in x.

c.

The inductive bias of a KNN model that utilizes euclidean distance measurements, k=1, and with a mean aggregator assumes that the value for a new data point is the mean of its nearest neighbors' value. In essence, that there is an assumption of similar inputs have similar outputs. This model is a non-parametric model, and its inductive bias is weak in the sense that it makes few assumptions about the underlying relationship between the inputs and outputs.

The inductive bias of a linear regression model, of degree 1, is that it assumes the value for a new data point can be estimated as a linear combination of the input values. This model is a parametric model, and its inductive bias is strong in the sense that it makes specific assumptions about the underlying relationship between the inputs and outputs. In this case (degree = 1), the assumption is that the relationship within the data is linear.