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Time Series HW 3



* 1. Plot of Y Data



* 1. Plot of PACF of Y Data



1.3 Plot of ACF of Y Data

1.a

Based on the plot of ACF and PACF, I will choose to use the AR(2) model for this set of data because the PACF shows it dropping at lag 2.

1.b

We should not use demean false because the plot of Y shows that the mean is clearly not 0, but rather might be somewhere near 75. Phi = 1.3175005 and -0.6341215 while PhiSE = 0.07850996. All parameters are significant.



* 1. Plot of Residuals for AR(4) of Y data

1.c

This plot does not appear to have a variance that completely looks like iid. This does cause some concern for the center of the data. However, the dates between about 1830 forward and about 1760 to 1790 look like iid.



* 1. Prediction for 10 years ahead of Y data

1.d

Graph 1.5.

1.e



* 1. Prediction 10 years out for AR(3) of Y Data

1.f

Graph 1.6



* 1. Plot of Residuals for AR(3) of Y Data

1.g

Plot 1.7 shows about the same as it did and AR(2) for this data.

1.h

Based on the two, I would go with AR(3).

1.i

AR(2) Predictions:

88.89157, 85.04872, 70.54270, 53.86785, 41.09730, 34.84597, 34.70793, 38.49016, 43.56078, 47.84294

AR(3) Predictions:

88.11245, 82.45459, 67.24390, 51.75093, 41.35115, 37.36172, 38.35264, 41.82459, 45.52159, 48.09104