Lorenz Curve and Gini Coefficient **ANSWER KEY**

1. Arrange the data from lowest to highest.

Bill	1500
Zak	2000
Robert	8000
Jose	9000
Erika	10000
Kai	12000
Juan	15000
Harry	16000
Kathleen	20000
Emily	30000

2. Calculate the total income: $123,500.00

3. Divide into quintiles. 10/5 = 2 earners in each quintile. Bill and Zak compose the lowest quintile or 20% of income earners; Robert and Jose compose the second quintile or cumulative of 40% of income earners; Ericka and Kai compose the third quintile, or a cumulative of 60% of income earners; Juan and Harry compose the fourth quintile, or a cumulative of 80% of income earners; and Kathleen and Emily are the fifth quintile or a cumulative of 100% of income earners.

4. Calculate the total income in each quintile:

20	$3,500
40	$17,000
60	$22,000
80	$31,000
100	$50,000

5. Calculate the percent of total income in each quintile.

20	$3,500	0.028
40	$17,000	0.138
60	$22,000	0.178
80	$31,000	0.251
100	$50,000	0.404
Total	$123,500	

6. Approximate the percentages for easier graphing.

20	$3,500	0.03
40	$17,000	0.14
60	$22,000	0.18

80	$31,000	0.25
100	$50,000	0.4
Total	$123,500	

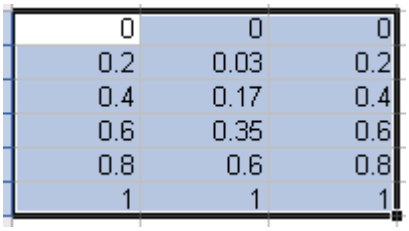
7. Calculate the cumulative percentage of household income.

20	$3,500	0.03	0.03
40	$17,000	0.14	0.17
60	$22,000	0.18	0.35
80	$31,000	0.25	0.6
100	$50,000	0.4	1

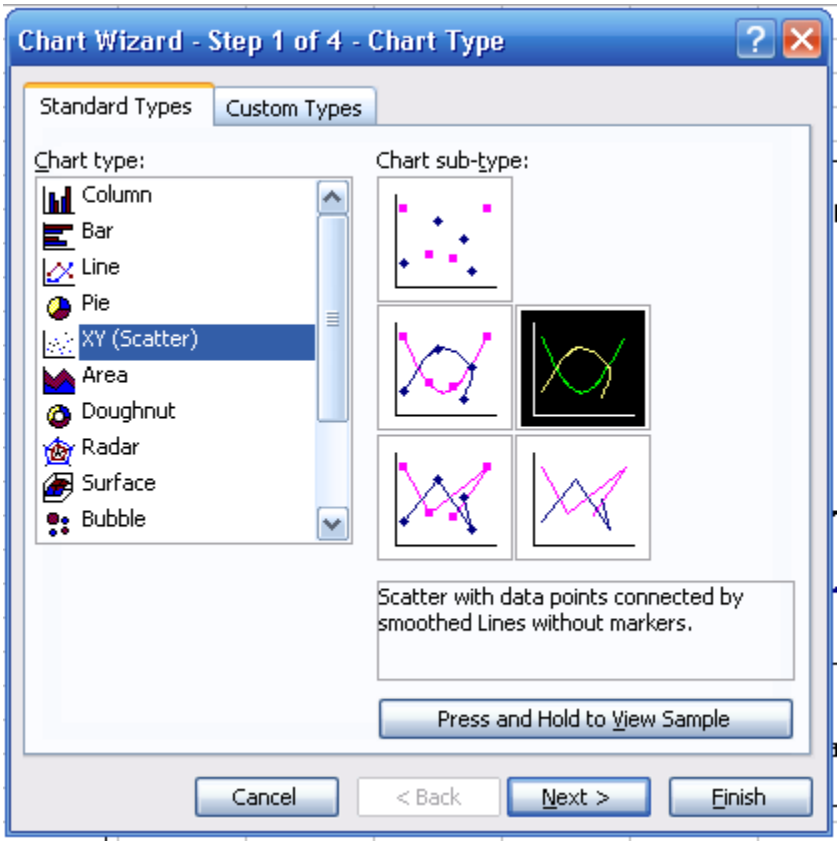
8. Graph quintiles, cumulative percent of income, and line of perfect equality. Begin by deleting the two middle columns and adding a third column (the line of perfect equality.)

0	0	0
0.2	0.03	0.2
0.4	0.17	0.4
0.6	0.35	0.6
0.8	0.6	0.8
1	1	1

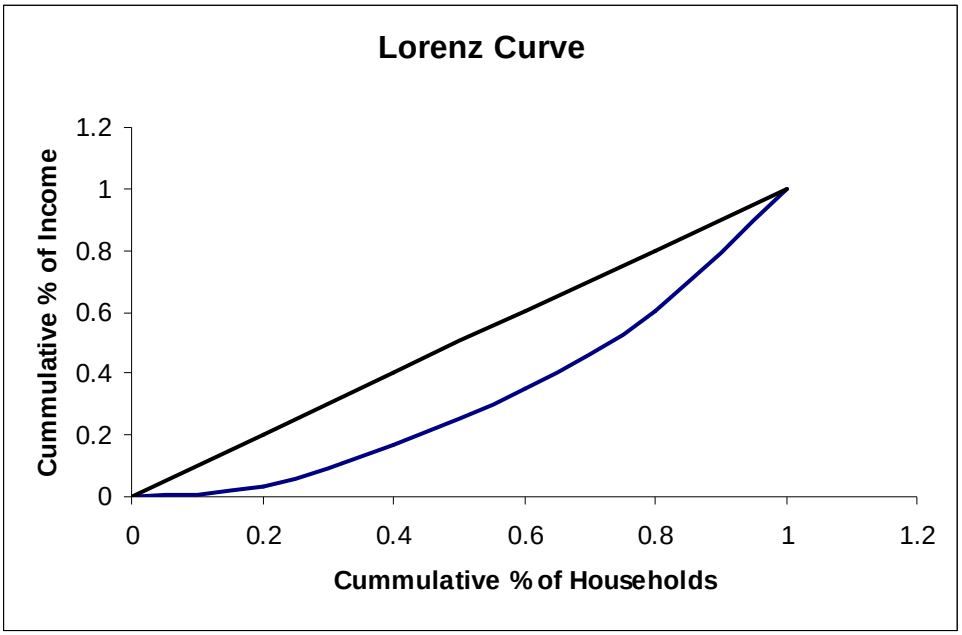
9. Highlight data.



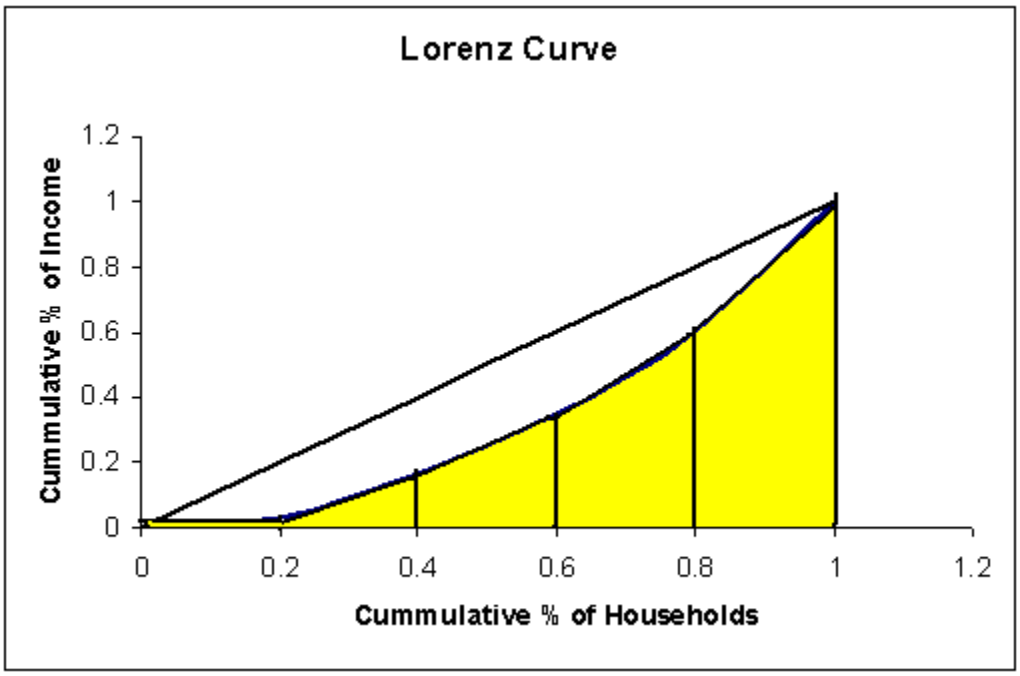
10. Use the Chart Wizard, select “Scatter Plot”



11. Eliminate gridlines, background, Legend as you prefer, and finish.



12. Calculate the area under the Lorenz Curve using the properties of a trapezoid. The formula is: ½(b1 + b2).2.



Area = ½(0 + .03).2 + ½(.03 + .14).2+ ½(.,14+.35).2+1/2(.35+.6).2+1/2(.6+1).2
Area = .33

13. Subtract area under the line of perfect equality from the area under the Lorenz Curve. In other words, .5 - .33 = .17. This is the area between the line of perfect equality and the Lorenz Curve.

15. The Gini Coefficient is found by taking the ratio of the area between the line of perfect equality and the Lorenz Curve to the area under the line of perfect equality. That is: .17/.50 = .34. The Gini Coefficient is .34.