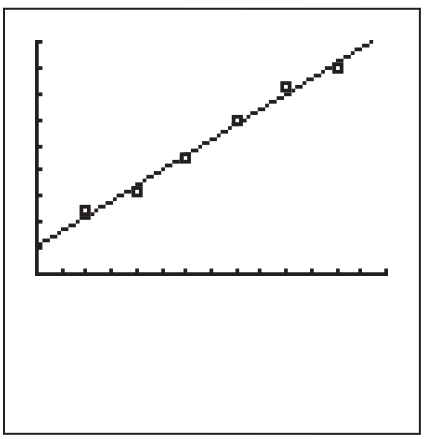
Name _____ Date _____

Consider the scatter plot, its line of best fit, and the corresponding residual plot of each data set. State if a linear model is appropriate for the data.

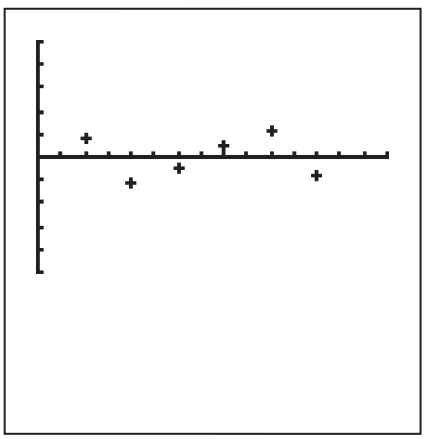
7. Linear regression equation: $y = 2.96x + 5.30$, $r = 0.9964$

x	2	4	6	8	10	12
y	12	16	22.5	29.5	36	40

Scatter Plot & Line of Best Fit



Residual Plot

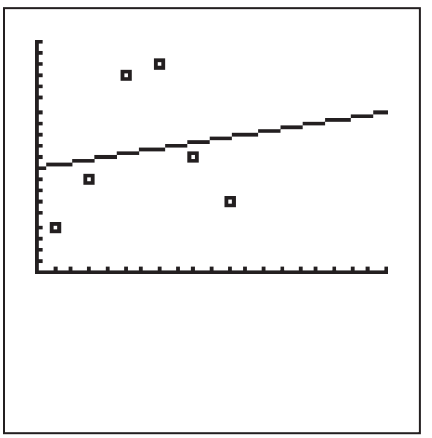


Based on the shape of the scatter plot and the correlation coefficient, a linear model appears to be appropriate for the data. Based on the residual plot, a linear model appears to be appropriate for the data.

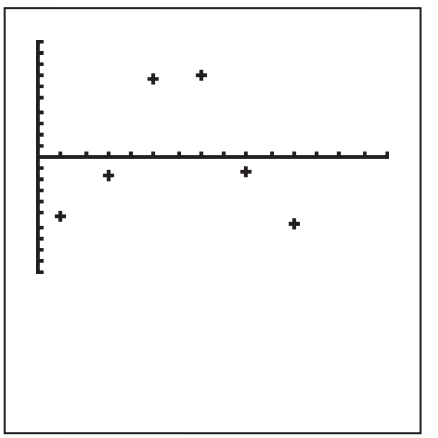
8. Linear regression equation: $y = 0.24x + 9.04$, $r = 0.1570$

x	1	3	5	7	9	11
y	4	8	17	18	10	6

Scatter Plot & Line of Best Fit



Residual Plot

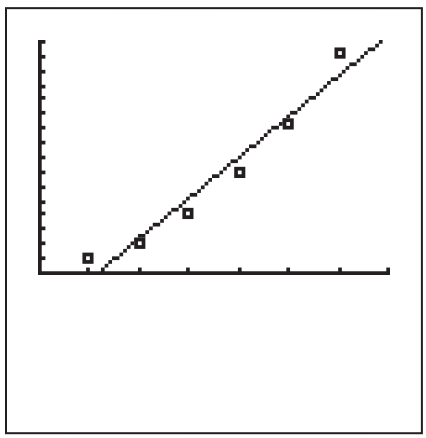


Name _____ Date _____

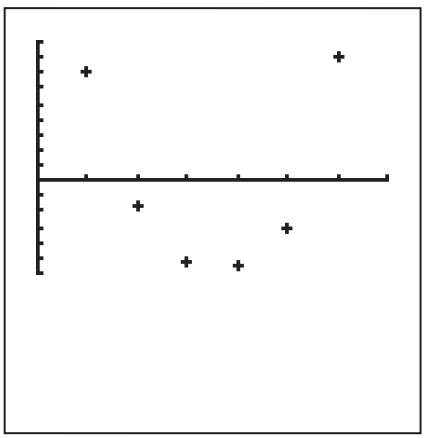
9. Linear regression equation: $y = 14.08x - 163.13$, $r = 0.9746$

x	10	20	30	40	50	60
y	49	103	207	346	511	762

Scatter Plot & Line of Best Fit



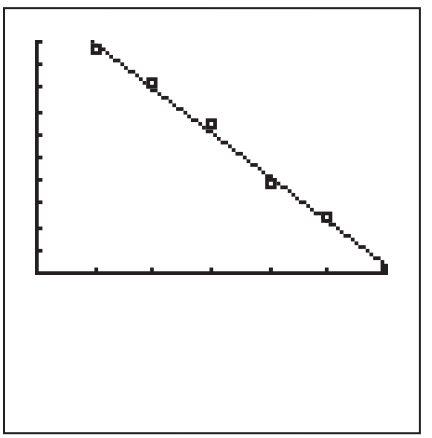
Residual Plot



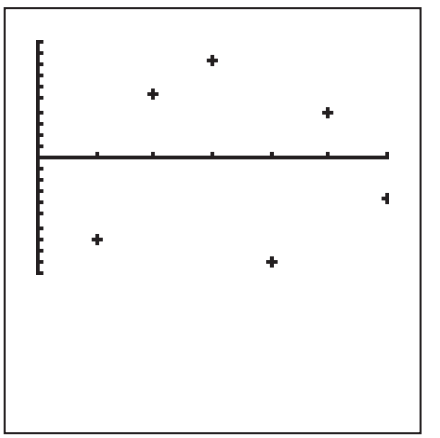
10. Linear regression equation: $y = -1.91x + 59$, $r = -0.9968$

x	5	10	15	20	25	30
y	48	41	32	19	12	1

Scatter Plot & Line of Best Fit



Residual Plot

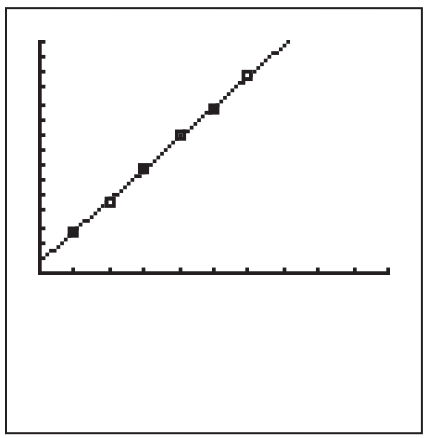


Name _____ Date _____

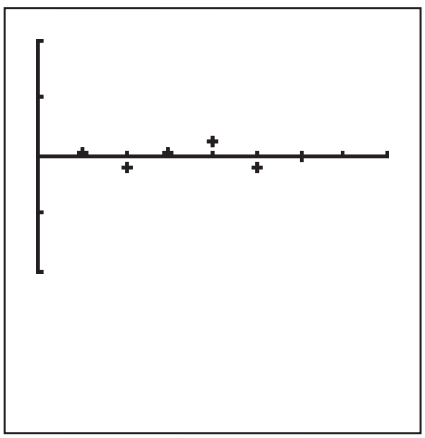
11. Linear regression equation: $y = 4.01x + 1.43$, $r = 0.9997$

x	1	2	3	4	5	6
y	5.5	9.25	13.5	17.75	21.25	25.5

Scatter Plot & Line of Best Fit



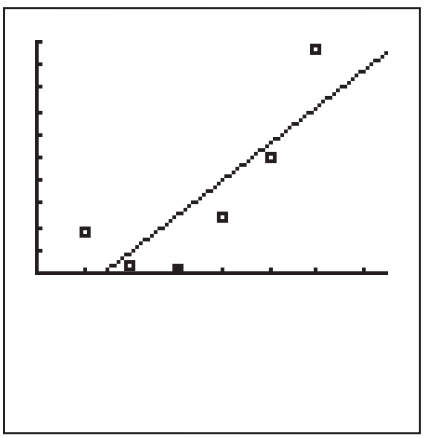
Residual Plot



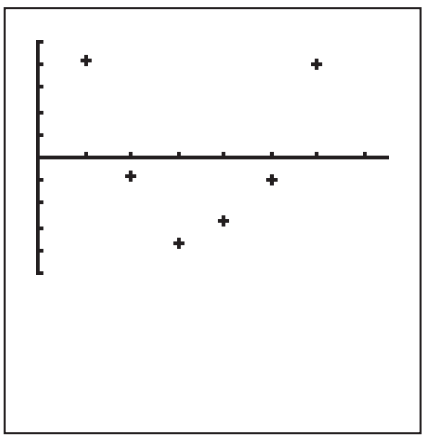
12. Linear regression equation: $y = 3.93x - 11.33$, $r = 0.8241$

x	2	4	6	8	10	12
y	9	2	1	12	25	48

Scatter Plot & Line of Best Fit



Residual Plot



Name _____ Date _____

To Fit or Not To Fit? That Is The Question!
Using Residual Plots

Problem Set

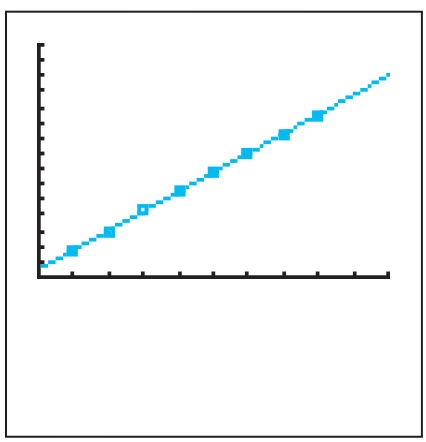
For each data set, determine the linear regression equation. Then, construct a scatter plot and a corresponding residual plot. State if a linear model is appropriate for the data. Round your answers to the nearest hundredth. Round the correlation coefficient to the nearest ten thousandth.

1.

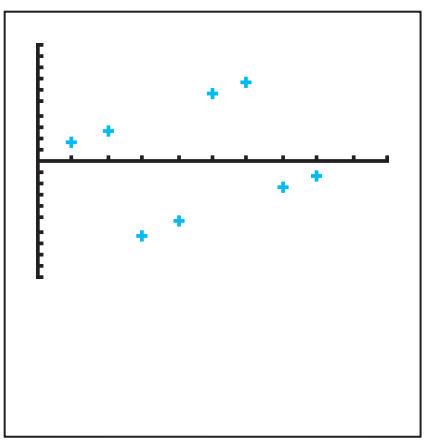
x	10	20	30	40	50	60	70	80
y	351	601	849	1099	1351	1601	1849	2099
Prediction	350.66	600.46	850.26	1100.06	1349.86	1599.66	1849.46	2099.26
Residual	0.34	0.54	−1.26	−1.06	1.14	1.34	−0.46	−0.26

Linear regression equation: $y = 24.98x + 100.86$, $r = 1.0000$

Scatter Plot & Line of Best Fit



Residual Plot



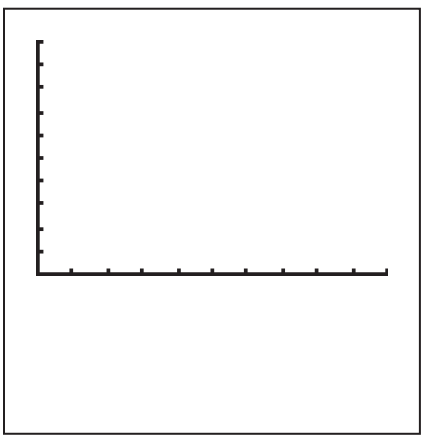
Based on the shape of the scatter plot and the correlation coefficient, a linear model appears to be appropriate for the data. Based on the residual plot, a linear model appears to be appropriate for the data.

2.

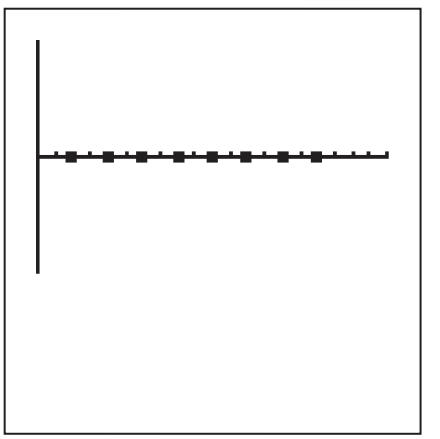
x	2	4	6	8	10	12	14	16
y	8	14	20	26	32	38	44	50
Prediction								
Residual								

Linear regression equation:

Scatter Plot & Line of Best Fit



Residual Plot



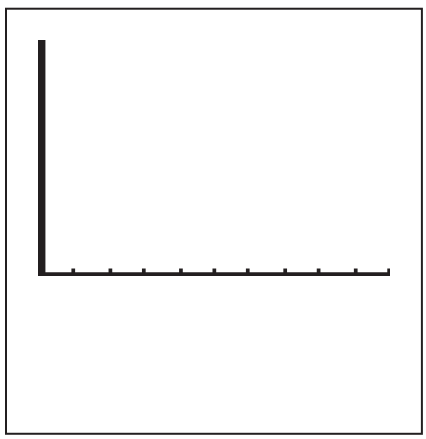
Name _____ Date _____

3.

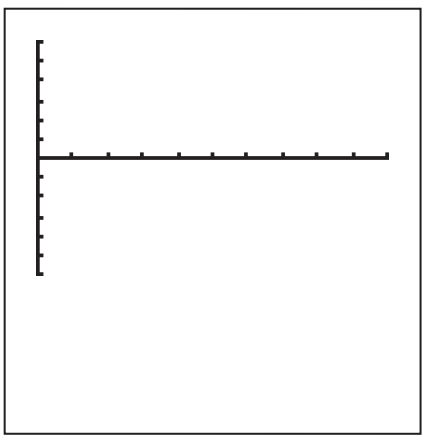
x	1	3	5	7	9	11	13	15
y	2	10	26	50	82	122	170	226
Prediction								
Residual								

Linear regression equation:

Scatter Plot & Line of Best Fit



Residual Plot

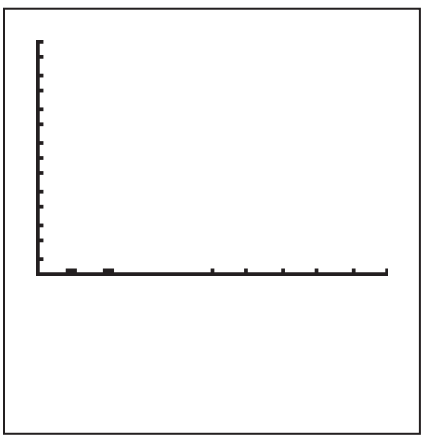


4.

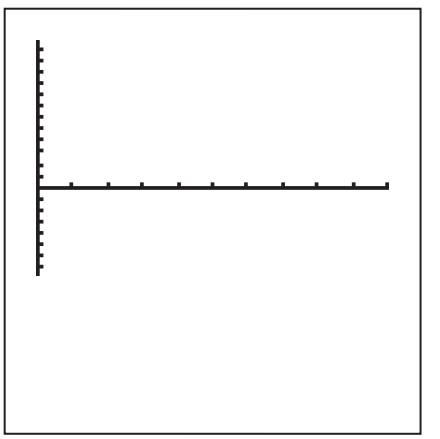
x	2	4	6	8	10	12	14	16
y	2	5	11	25	57	129	291	656
Prediction								
Residual								

Linear regression equation:

Scatter Plot & Line of Best Fit



Residual Plot



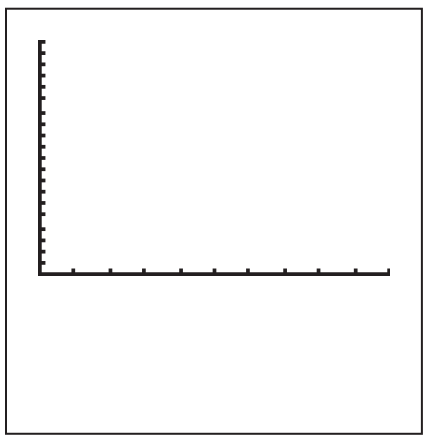
Name _____ Date _____

5.

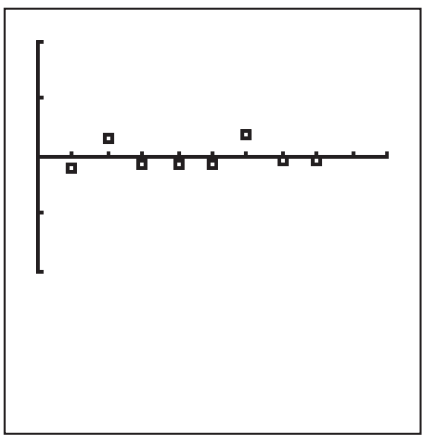
x	1	2	3	4	5	6	7	8
y	37.5	35.5	32.5	30	27.5	25.5	22.5	20
Prediction								
Residual								

Linear regression equation:

Scatter Plot & Line of Best Fit



Residual Plot

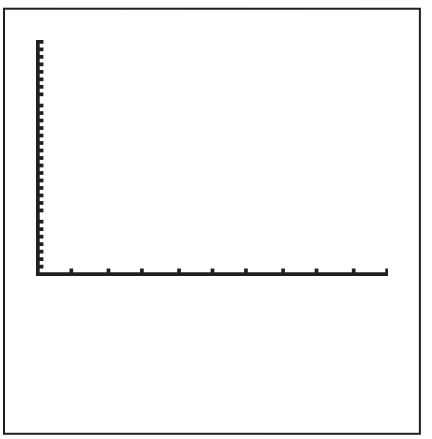


6.

x	2	4	6	8	10	12	14	16
y	50	48	46	44	40	36	30	24
Prediction								
Residual								

Linear regression equation:

Scatter Plot & Line of Best Fit



Residual Plot