

## Residuals Practice Worksheet

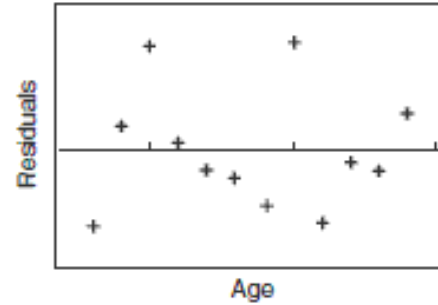
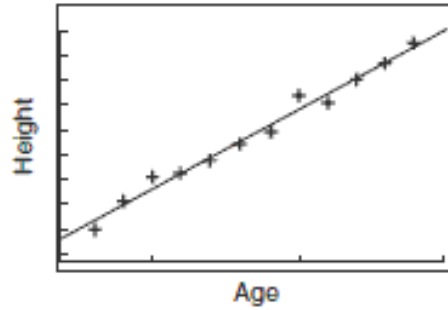
Name: \_\_\_\_\_ Date: \_\_\_\_\_

1. The data given below shows the height at various ages for a group of children

Age (months)	18	19	20	21	22	23	24	25	26	27	28	29
Height (cm)	76	77.1	78.1	78.3	78.8	79.4	79.9	81.3	81.1	82	82.6	83.5

Given the best fit line as:  $y = .634x + 64.945$

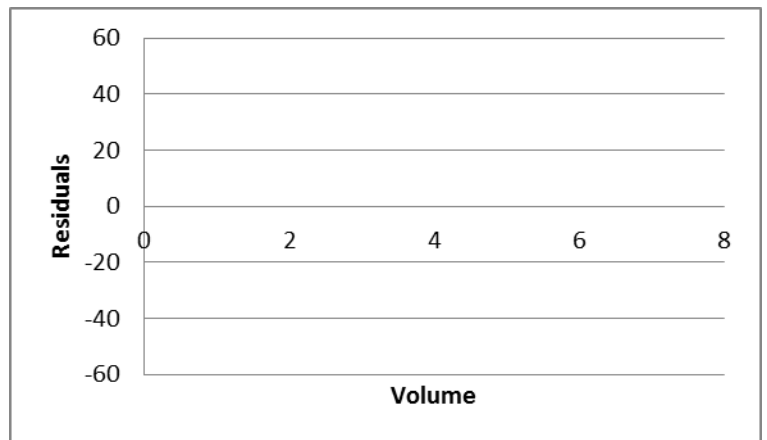
X	Y	Predicted	Residual
18	76		
19	77.1		
20	78.1		
21	78.3		
22	78.8		
23	79.4		
24	79.9		
25	81.3		
26	81.1		
27	82		
28	82.6		
29	83.5		



a) Is there a pattern? Is this a good model?

2.

Volume	# of People	Predicted	Residual
5	195		
5	96		
3.1	90		
6.8	188		
6.2	183		
5	166		
6.8	200		
5.5	161		
4.1	72		
4.1	157		
4.8	137		
1.5	68		
5.6	192		
5.1	156		

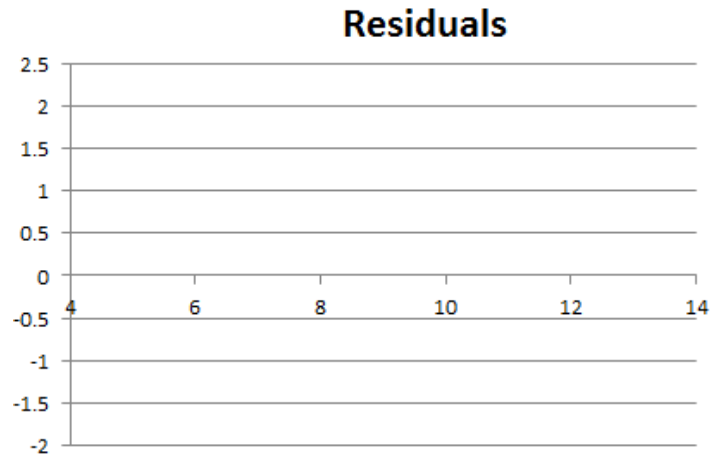


a. If  $y = 26.732x + 16.226$ , plot the residuals after filling in the table.

b. Based on the residuals plot, is a line a good fit of the data? **Explain.**

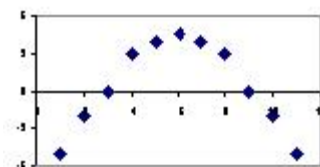
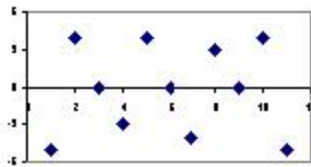
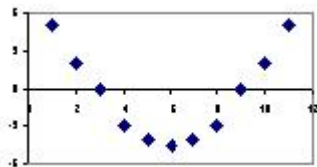
3. Consider the following data: The shoe sizes and heights (in inches) for men.

Shoe Size (x)	Height (y)	Predicted Height	Residual (Actual-Predicted)
8.5	66.0		
9.0	68.5		
9.0	67.5		
9.5	70.0		
10	70.0		
10	72.0		
10.5	71.5		
10.5	69.5		
11.0	71.5		
11.0	72		
11.0	73		
12.0	73.5		
12.0	74		
12.5	74		



- Find the equation for the line of best fit, as well as the correlation coefficient.
- Is there a pattern? Is the prediction line the best model for the data? How can you tell?

4. Which of the following residual plots indicate a good fit for a linear model?



Explain why based on what you learned about residuals.