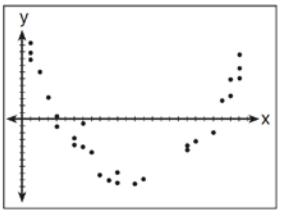
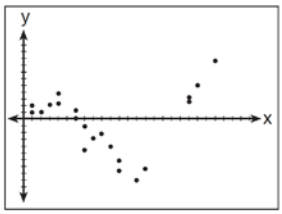
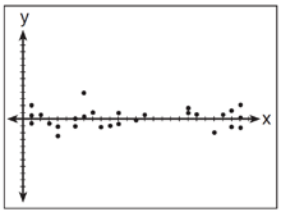
Name: _____

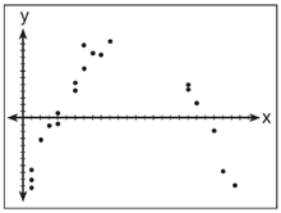
S.ID.B.6: Residuals

1 After performing analyses on a set of data, Jackie examined the scatter plot of the residual values for each analysis. Which scatter plot indicates the best linear fit for the data?

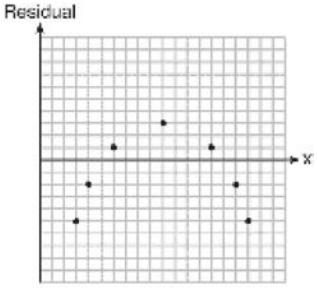
1) 

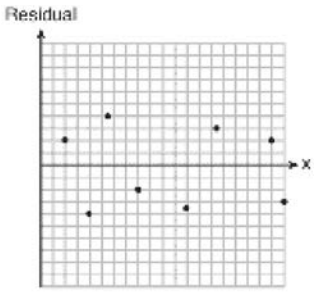
2) 

3) 

4) 

2 Which statistic would indicate that a linear function would *not* be a good fit to model a data set?

1) $r = -0.93$
2) $r = 1$
3) 

4) 

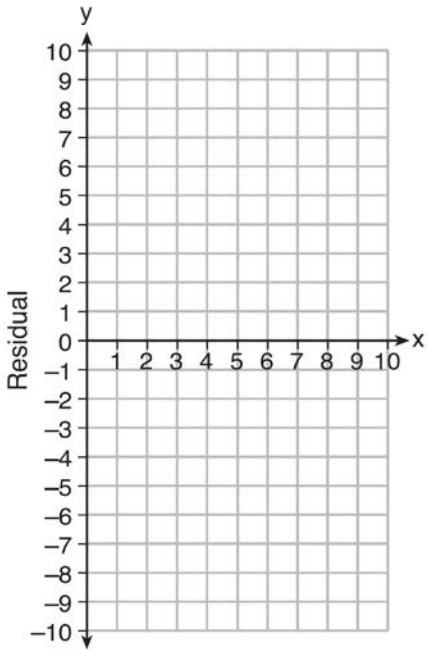
3 Use the data below to write the regression equation ($y = ax + b$) for the raw test score based on the hours tutored. Round all values to the *nearest hundredth*.

Tutor Hours, x	**Raw Test Score**	**Residual** (Actual – Predicted)
1	30	1.3
2	37	1.9
3	35	–6.4
4	47	–0.7
5	56	2.0
6	67	6.6
7	62	–4.7

Equation: _____

Create a residual plot on the axes below, using the residual scores in the table above.

Name: _____

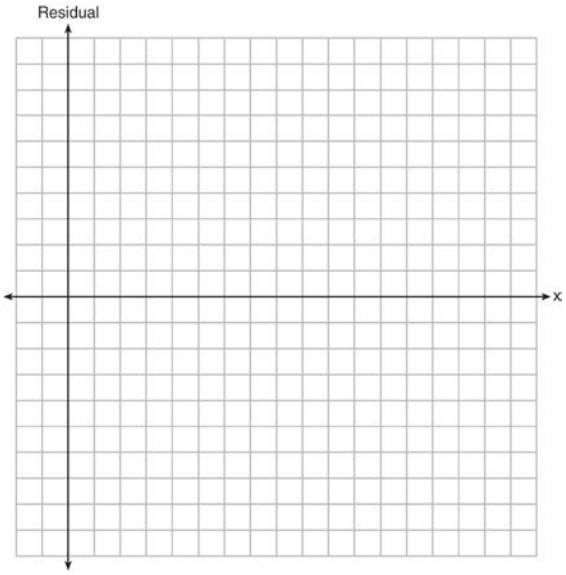


Based on the residual plot, state whether the equation is a good fit for the data. Justify your answer.

4 The table below represents the residuals for a line of best fit.

x	2	3	3	4	6	7	8	9	9	10
Residual	2	1	−1	−2	−3	−2	−1	2	0	3

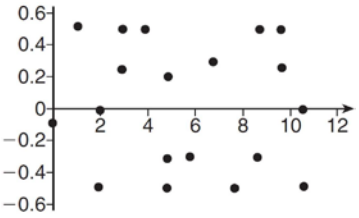
Plot these residuals on the set of axes below.



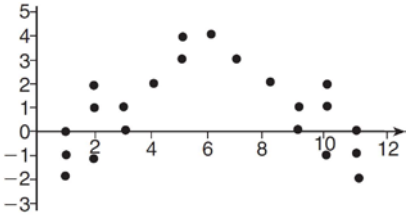
Using the plot, assess the fit of the line for these residuals and justify your answer.

Name: _____

5 The residual plots from two different sets of bivariate data are graphed below.



Graph A



Graph B

Explain, using evidence from graph *A* and graph *B*, which graph indicates that the model for the data is a good fit.

S.ID.B.6: Residuals
Answer Section

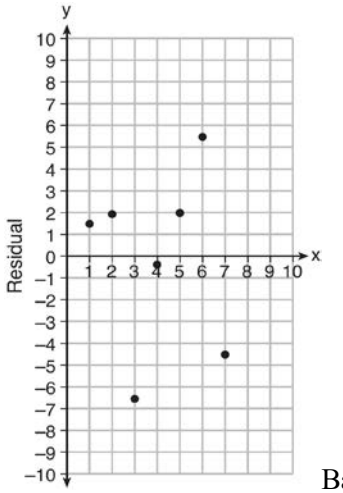
1 ANS: 3
For a residual plot, there should be no observable pattern and a similar distribution of residuals above and below the *x*-axis.

REF: 011624ai

2 ANS: 3
A correlation coefficient close to –1 or 1 indicates a good fit. For a residual plot, there should be no observable pattern and a similar distribution of residuals above and below the *x*-axis.

REF: fall1303ai

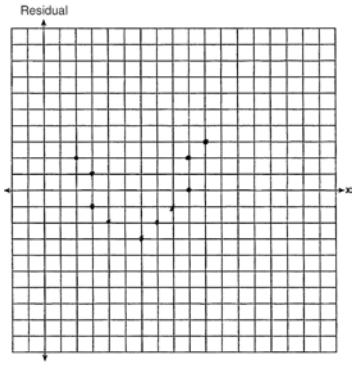
3 ANS:



$y = 6.32x + 22.43$ Based on the residual plot, the equation is a good fit for the data because the residual values are scattered without a pattern and are fairly evenly distributed above and below the *x*-axis.

REF: fall1314ai

4 ANS:



The line is a poor fit because the residuals form a pattern.

REF: 081431ai

5 ANS:
Graph A is a good fit because it does not have a clear pattern, whereas Graph B does.

REF: 061531ai