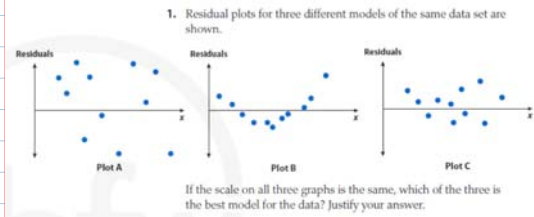


Friday, October 9, 2015
9:07 AM



① Plot B is bad since it has a definite pattern.

Plots A and C have no pattern, but C is closer to zero, so Plot C is best.

For Exercises 3-6, use the table below.

x	0.5	1.1	1.3	1.6	2.3	2.5	3.0	3.2
y	13	8	24	40	33	15	45	26

- Make a scatter plot of the data.
- One student used the equation $y = 17x - 5$ to model the data. Another student used the equation $y = 11x + 5$. Graph both lines on your scatter plot.
- Compute the residuals for each value of x for both models.
- Find the residual sum of squares for each model. Which is the better model for the data according to the least-squares criterion?

For Exercises 7-8, do the following.

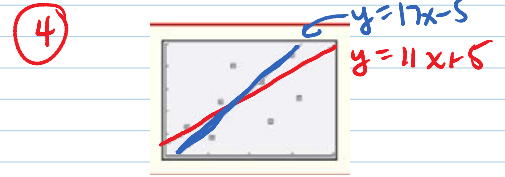
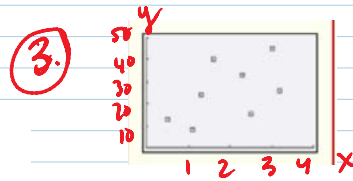
- Make a scatter plot of the data.
- Draw a line that you think best models the pattern in the data.
- Find an equation for the line.
- Make a residual plot for your model.
- Use your residual plot to decide whether the model is a good one for the data.

7.

x	2.4	0.6	3.5	1.9	3.7	1.1	2.6	3.1	1.3	2.0
y	168	187	152	178	164	174	160	166	182	163

8.

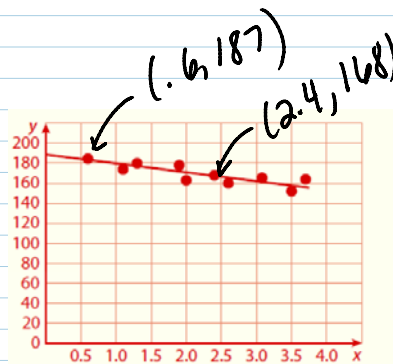
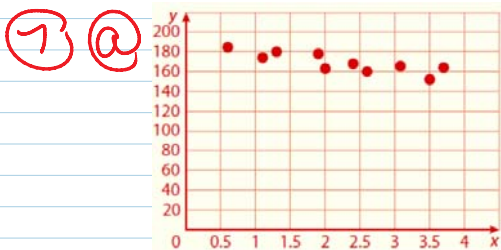
x	39	27	42	20	48	30	38	35	24	43	32	46	26	36
y	26	14	21	0	37	10	27	16	7	25	9	33	12	21



⑤ (on calc)

Sample answer: The residuals (L2 - L3) for each model are shown in L4.

⑥ First student: 1543
Second student: 978
The 2nd model is better because it has a lower residual sum of squares.



⑥ *Many possible answers!

*Many possible answers... I chose
⑦ (0.6, 187) and (2.4, 168)

$$m = \frac{168 - 187}{2.4 - 0.6} = \frac{-19}{1.8} = -\frac{95}{9} \approx -10.56$$

$$y - 187 = -10.56(x - 0.6)$$

$$y - 187 = -10.56x + 6.336$$

$$y = -10.56x + 193.34$$

← put in $y_1 =$

L1	L2	L3	L4	L5	L6
2.4	168	168	-.004		
.6	187	187	-.004		
3.5	152	156.38	-4.38		
1.9	178	173.28	4.724		
3.7	164	154.27	9.732		
1.1	174	181.72	-7.724		
2.6	160	165.88	-5.884		
3.1	166	160.6	5.396		
1.3	182	179.61	2.388		
2	163	172.22	-9.22		

Ind. Variable

Residuals

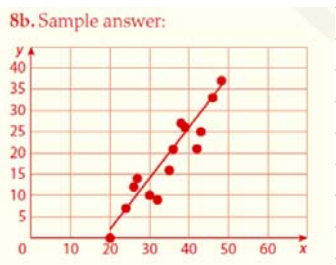
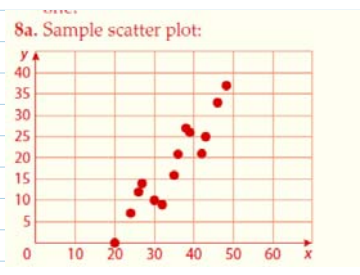
7d. Sample residual plot:



[0, 4] x [-10, 10]

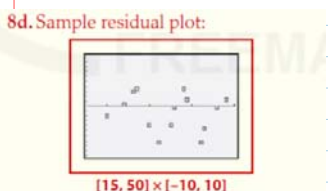
ⓐ The residuals are relatively small compared to the data + are randomly scattered, so the model appears to be a good one

8



8c. Sample answer: $y = 1.2x - 22$

many possible!
pick 2 pts, find slope + form!
use pt. - slope form!



[15, 50] x [-10, 10]

8e. Although the residuals are small, they appear to have a repeating pattern, so the model may not be a good one.