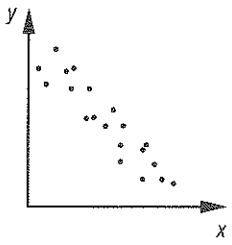
Name: _____

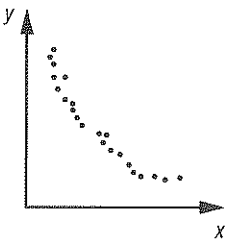
Group: _____ Date: _____

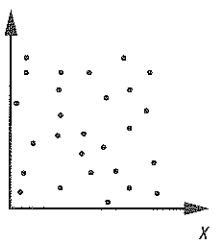
SUPPORT 1.3

The line as a model

1 Consider the three graphs below.

A 

B 

C 

a) Determine the linear correlation coefficient for each graph.

A _____ B _____ C _____

b) In which case would it be appropriate to model the scatter points by a line?

_____

_____

_____

c) In which situation is there a relationship between the variables?

_____

_____

_____

2 Observe the following series of data that represent the number (x) of available tellers in a bank and the mean waiting time (in min) for a client of this bank (y). This distribution has been listed in ascending order of the x-coordinates and has been divided into two equal groups. Fill in the blanks below to find the parameters of the Mayer line.

x	y
2	13
5	11
6	11
7	11.5
8	9
9	8
10	6.25
11	5.5
12	4
13	2

$\overline{x_1}$ = _____ $\overline{y_1}$ = _____

$\overline{x_2}$ = _____ $\overline{y_2}$ = _____

$P_1(\overline{x_1}, \overline{y_1})$ = _____

$P_2(\overline{x_2}, \overline{y_2})$ = _____

The rate of change from P_1 to P_2: _____

The y-intercept b of the line passing through P_1 and P_2: _____

The equation of the Mayer line:

y = _____

Name: _____

Group: _____ Date: _____

SUPPORT 1.3

(cont'd)

3 Consider the same distribution as in the previous exercise. This time the distribution is divided into three approximately equal groups. Fill in the blanks below to find the parameters of the median-median line.

	x	y		
Median of the x-coordinates Md_{x_1} = _____	2	13	Median of the y-coordinates Md_{y_1} = _____	$M_1(Md_{x_1}, Md_{y_1})$ = _____
	5	11		
	6	11		
Median of the x-coordinates Md_{x_2} = _____	7	11.5	Median of the y-coordinates Md_{y_2} = _____	$M_2(Md_{x_2}, Md_{y_2})$ = _____
	8	9		
	9	8		
	10	6.25		
Median of the x-coordinates Md_{x_3} = _____	11	5.5	Median of the y-coordinates Md_{y_3} = _____	$M_3(Md_{x_3}, Md_{y_3})$ = _____
	12	4		
	13	2		
↓			↓	
Mean of the medians $\bar{x}$ = _____			Mean of the medians $\bar{y}$ = _____	$P(\bar{x}, \bar{y})$ = _____

The rate of change from M*1* to M*3*: _____

The y-intercept b of the line passing through P*1* and P*2*: _____

The equation of the median-median line: y = _____

4 Draw the scatter plot that corresponds to the situation described in the two previous exercises. Draw the Mayer line and the median-median line. What would be the customer's waiting time, to the nearest minute, if the bank had 3 available tellers:

a) according to the Mayer line?

_____

_____

_____

_____

b) according to the median-median line?

_____

_____

_____

_____