Math 1
· toolkit
· glue stick
· calculator
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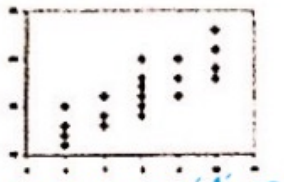
Linear Regression: Correlation

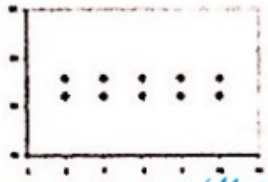
You can describe the overall pattern of a scatterplot by the form, direction, and strength of the relationship between the two variables.

- The form of a scatterplot is generally described as either *linear* or *curved*.
- The direction (or association) of a scatterplot is described as *positive* if the scatterplot slopes upward as we move from left to right, as *negative* if the scatterplot slopes downward as we move from left to right, or as *none* if the direction is neither positive nor negative.
- The strength of the relationship between two variables shown in a scatterplot is determined by how closely the points follow a clear form. Use the words *strong*, *moderate*, or *weak* to describe the strength.

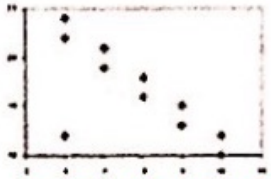
Here are some examples of how to describe scatterplots:



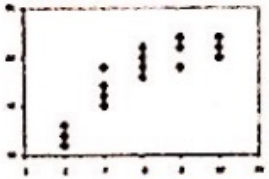
linear, positive moderate



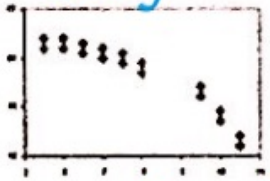
linear, neither, strong



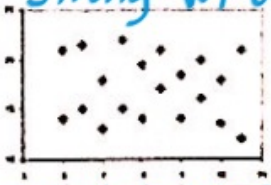
linear, negative strong w/ an outlier



curved, positive moderate



curved, negative strong



non-linear, neither weak

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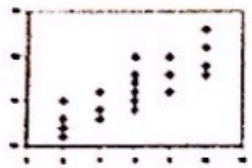
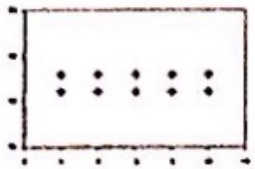
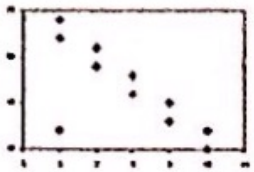
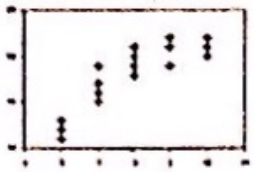
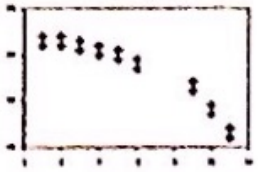
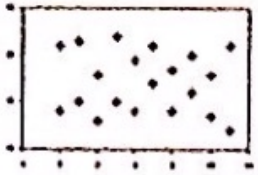
[redacted] describe the overall pattern of a scatterplot by the form, direction, and strength of the relationship between the two [redacted].

- The _____ of a scatterplot is generally described as either *linear* or *curved*.
- The _____ of a scatterplot is described as *positive* if the scatterplot slopes upward as we move from left to right, as *negative* if the scatterplot slopes downward as we move from left to right, or as *none* if the direction is neither positive nor negative.
- The _____ of the relationship between two variables shown in a scatterplot is determined by how closely the points follow a clear form. Use the words *strong*, *moderate*, or *weak* to describe the strength.

Here are some examples of how to describe scatterplots:

[redacted]

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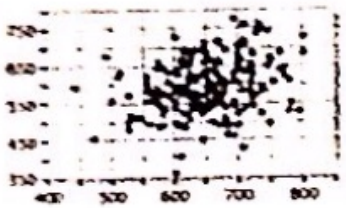
1. Match each of the following descriptions to a scatterplot shown below.

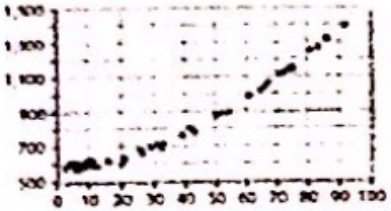
a. Linear, negative, moderate
b. Curved, negative, moderate
c. Linear, positive, weak
d. Curved, positive, strong
e. Linear, positive, moderate

I.



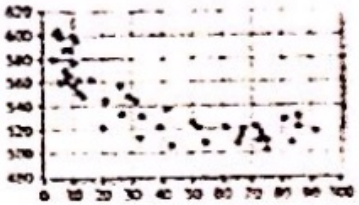
c

II.



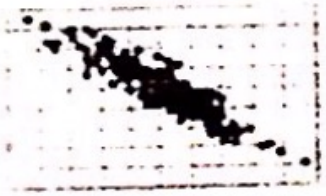
d

III.



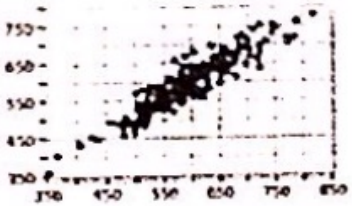
b

IV.



a

V.



e

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Correlation Matching Activity

Graph I	Graph II	Graph III	Graph IV
Graph V	Graph VI	Graph VII	graph 6 table B r = 0.94 Strong
graph 3 table E r = 0.07 weak	Table A Graph 6 r = 0.50 moderate	graph 1 table F r = 1 Perfect	graph 7 table C r = -0.94 Strong
graph 5 table D r = -0.77 moderate	graph 4 table G r = -1 perfect		

L4 L2

Table A

X	Y
2	1
23	15
33	25
37	19
42	28
46	32
45	45
5	37
55	17
57	48
61	27
64	23

Table B

X	Y
2	1
23	15
33	25
37	19
42	28
46	32
45	45
5	37
55	4
57	48
61	5
64	46

Table C

X	Y
2	47
23	49
33	42
37	39
42	35
46	32
45	31
5	26
55	32
57	21
61	13
64	08

Table D

X	Y
2	47
23	49
33	36
37	39
42	21
46	45
45	31
5	37
55	37
57	21
61	13
64	18

Table E

X	Y
2	47
23	4
33	42
37	39
42	28
46	32
45	45
5	37
55	32
57	48
61	5
64	44

Table F

X	Y
2	18
23	222
33	362
37	418
42	488
46	544
45	53
5	6

Table G

X	Y
2	44
23	101
33	271
37	219
42	154
46	102
45	135
5	05

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Correlation Coefficient / r-value: tells you how strong & what direction the data is.

r-values closer to 1 & -1 are the strongest
r-values closer to 0 is weak

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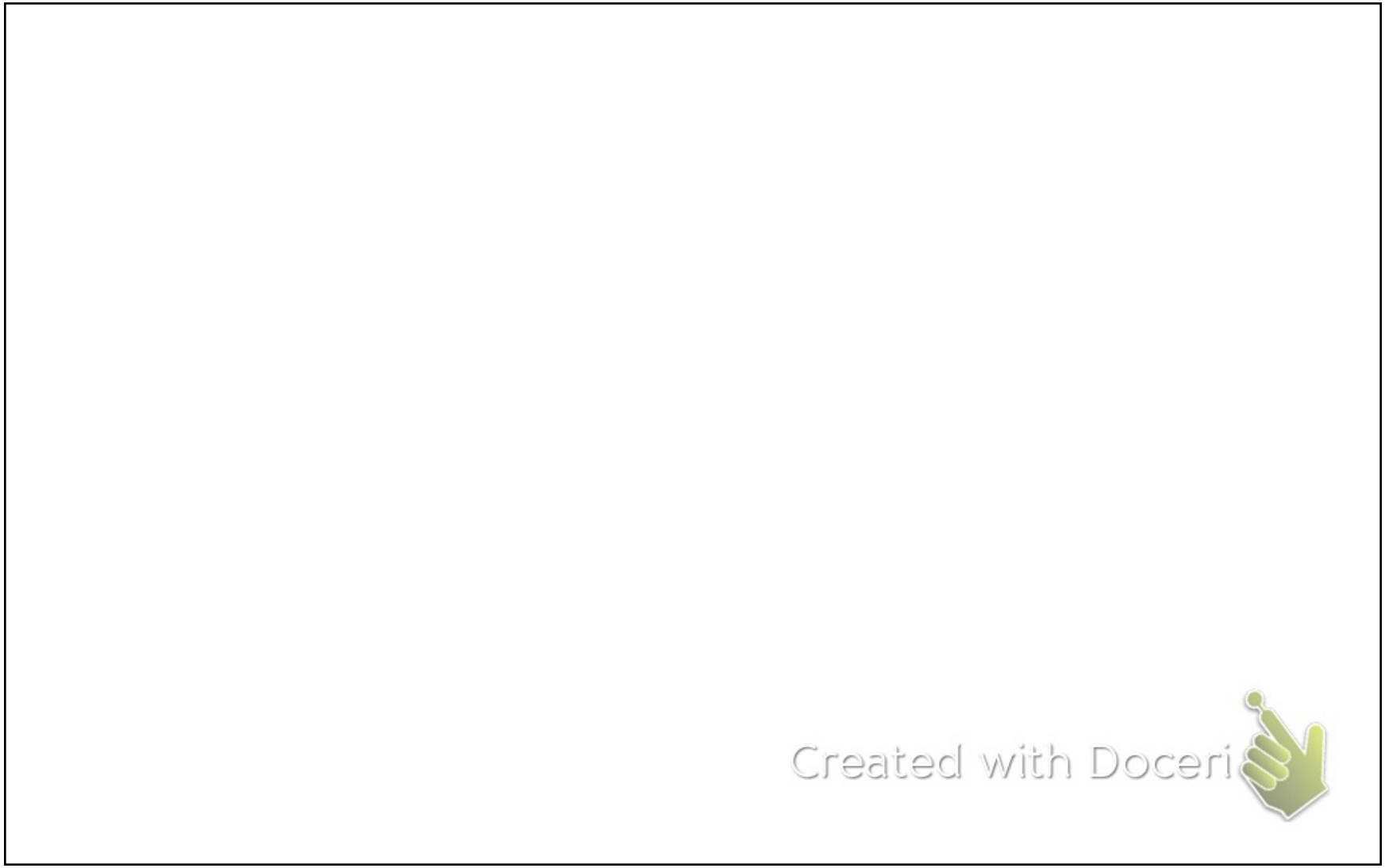
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