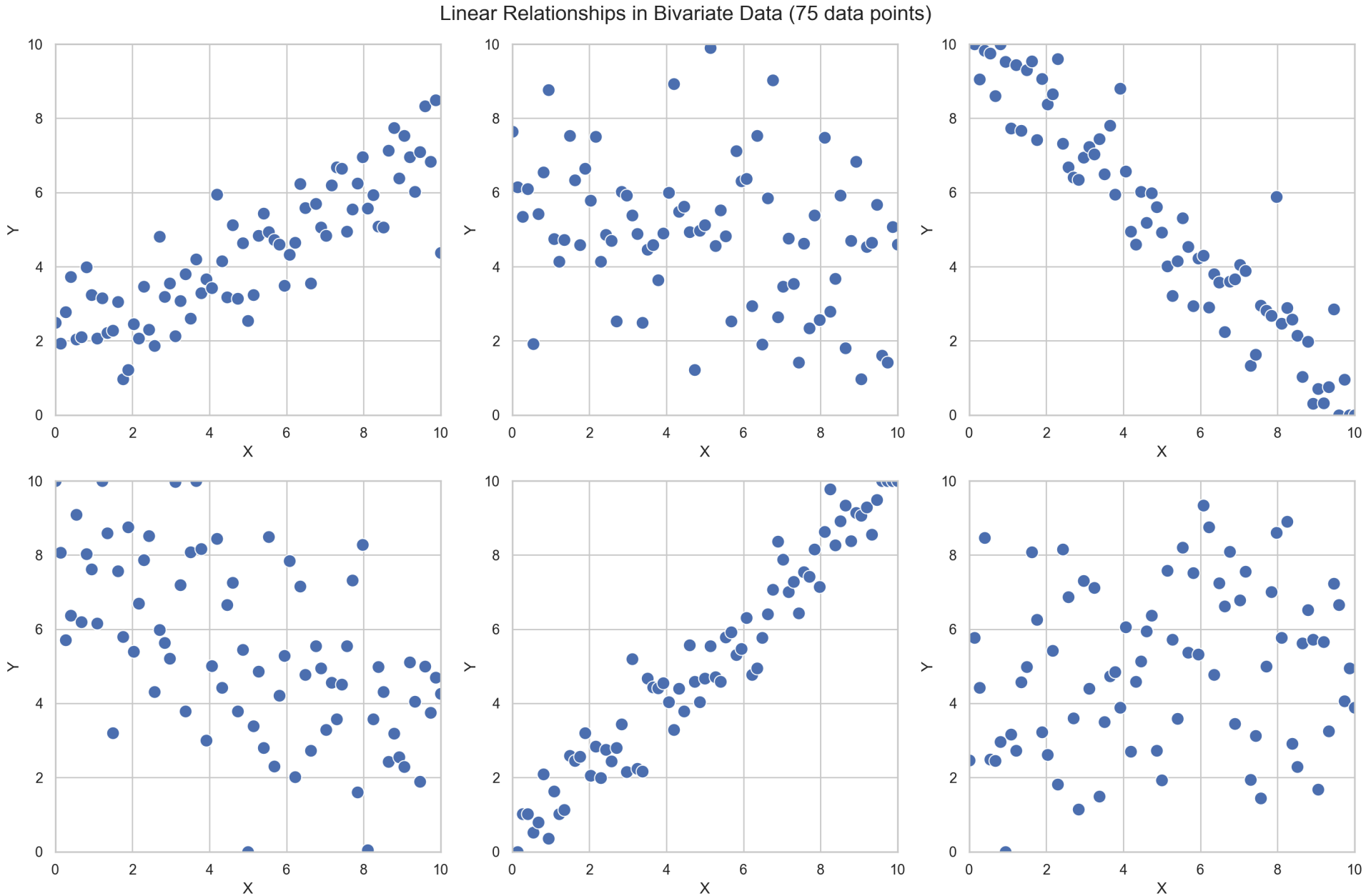
Regression Models and Significance

Significant ($p < .05$)

- There is a **significant** linear relationship between the y and the x
- This means you **can use the regression equation** for predictions, provided the accuracy is good enough (see the standard error for this)
- Graphically this means **there is enough data and you are convinced where the trendline is**
- We say: *The model is significant*

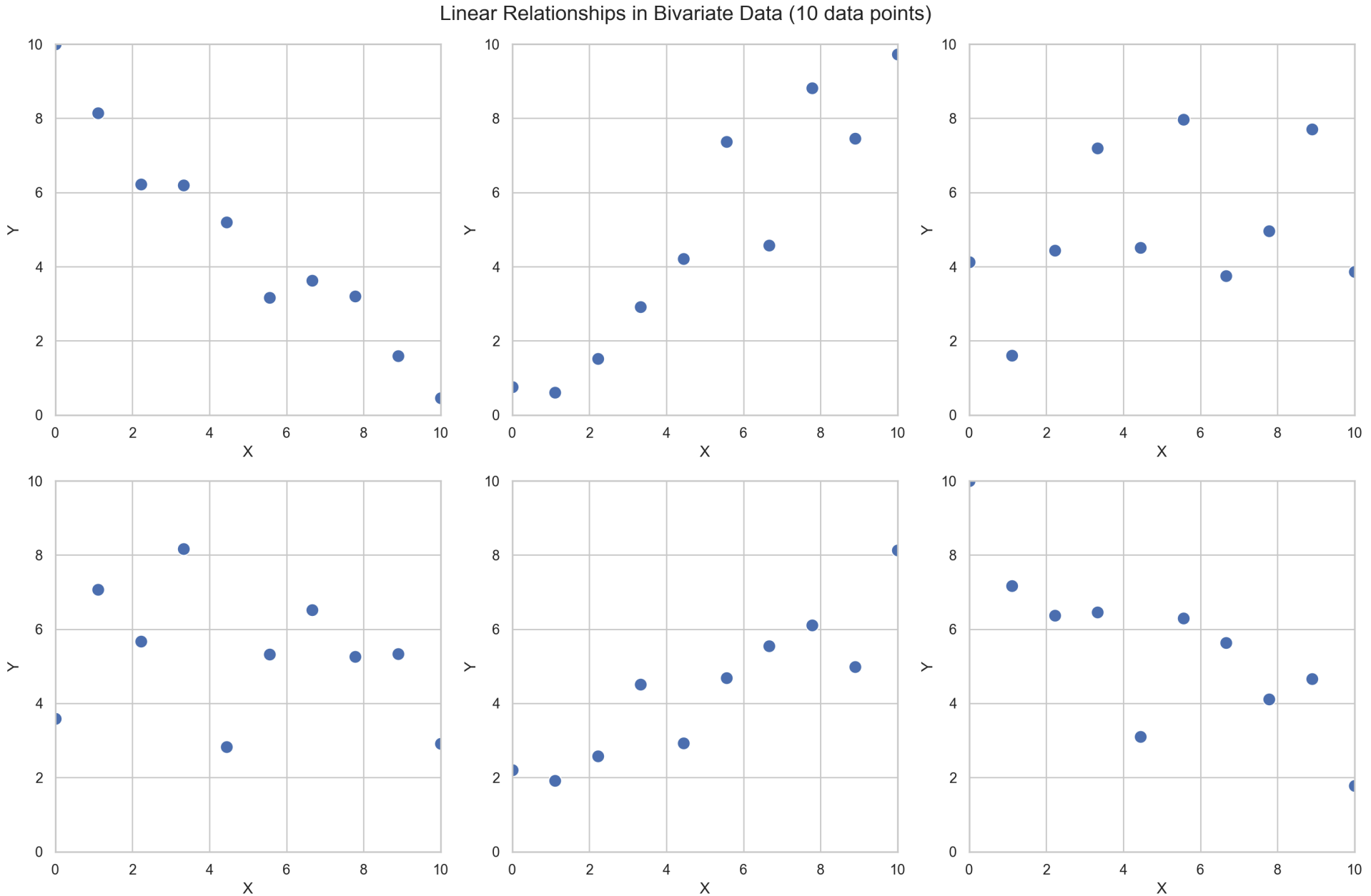
Not Significant ($p \geq .05$)

- There is **not a significant** linear relationship between the y and the x
- This means you **can not use the regression equation** for predictions
- Graphically this means **there is not enough data or you are not convinced where the trendline is**
- We say: *The model is not significant*


Linear Relationships in Bivariate Data (75 data points)
X
Y
0
2
4
6
8
10

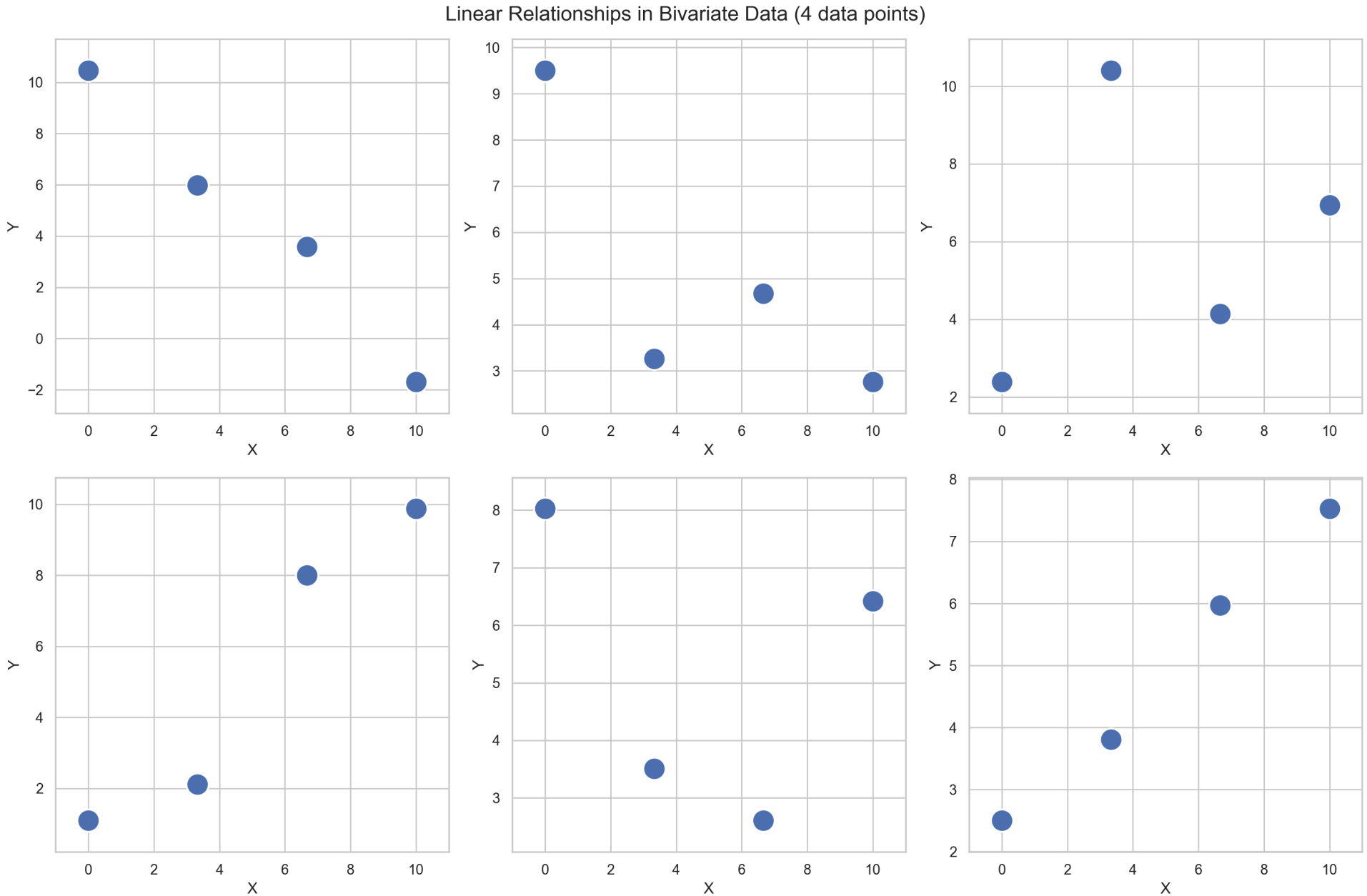
P-values (75 data values)

Dataset	P-value
Dataset 1	0.000000000000000000010159281279849480499507263866 3
Dataset 2	0.006763079333354878389106268343766714679077267646 79
Dataset 3	0.000000000000000000000000000000000000011318608274 39
Dataset 4	0.000000128208904392976438617167021447040831105823 60
Dataset 5	0.000000000000000000000000000000000000000000004590
Dataset 6	0.086844444147837637770770413681020727381110191345 21


Linear Relationships in Bivariate Data (10 data points)
X
Y
0
2
4
6
8
10

P-values (10 data values)

Dataset	P-value
Dataset 1	0.0000015731
Dataset 2	0.0000484534
Dataset 3	0.3547172973
Dataset 4	0.5086377116
Dataset 5	0.0003194409
Dataset 6	0.0040554211


Linear Relationships in Bivariate Data (4 data points)
X
Y

P-values (4 data values)

Dataset	P-value
Dataset 1	0.00897
Dataset 2	0.21050
Dataset 3	0.72734
Dataset 4	0.03753
Dataset 5	0.70721
Dataset 6	0.00418

Comparison of P-values Across All Datasets

Dataset	P-value (75 points)	P-value (10 points)	P-value (4 points)
Dataset 1	1.015928e-21	0.000002	0.008972
Dataset 2	6.763079e-03	0.000048	0.210501
Dataset 3	1.131861e-38	0.354717	0.727340
Dataset 4	1.282089e-07	0.508638	0.037532
Dataset 5	4.590218e-47	0.000319	0.707209
Dataset 6	8.684444e-02	0.004055	0.004181