

Name: _____

Date: _____

12.7 NOTES: Linear Regression (Best Fit Lines)

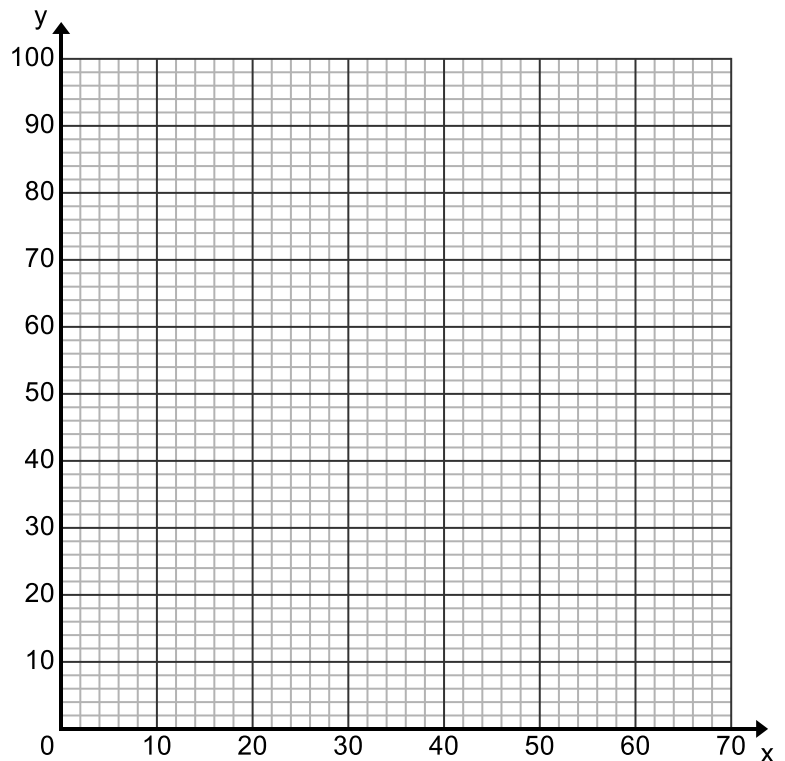
Algebra 1

I. Absences vs. Grades (period 2, red class)

Days Absent	27	9	65	3	0	7	2	11	0	6	2	14	48	3
Average	68	95	32	79	55	59	90	60	77	54	96	86	26	85

9	8	5	0	21	2								
64	76	93	81	73	83								

- Create a **Scatter Plot** of the data on the coordinate plane.
- State the **correlation coefficient (*r*-value)** to the nearest hundredth, and explain what it suggests in the context of the data.
- Draw a **line of best fit** and determine the **linear regression equation** that best represents the line. Round parameters to the nearest tenth.



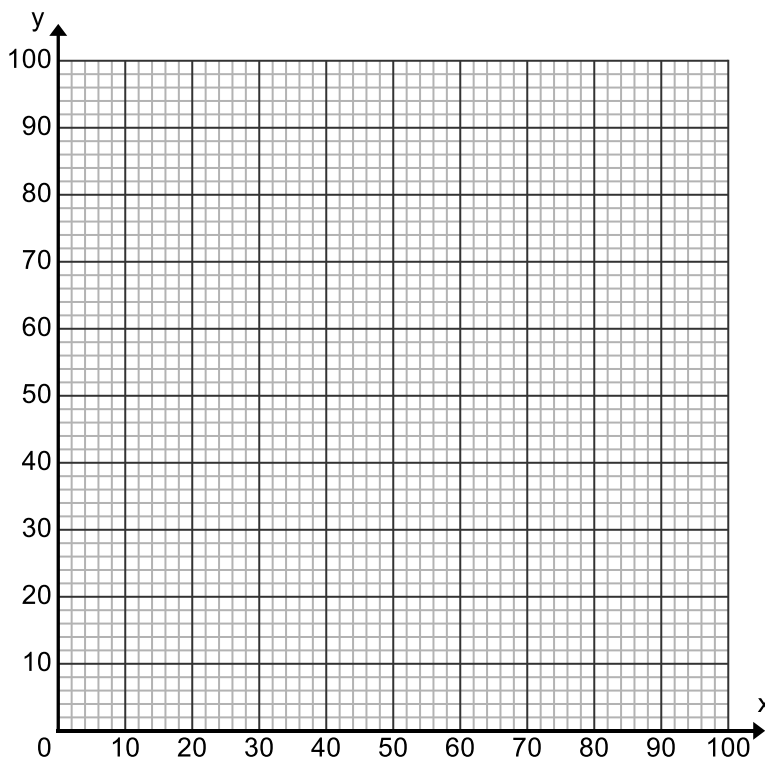
- Use the linear regression equation from part c to predict the average of someone who has 5 absence. Predict the number of absences of someone with an average of 45.

II. Homework Average vs. Unit Test Average (period 2, red class)

Homework	60	100	12	78	38	56	99	75	98	39	103	79	10	96
Unit Tests	54	95	27	83	66	58	88	37	71	58	93	88	11	85

61	57	86	91	52	94								
60	83	94	72	81	76								

- Create a **Scatter Plot** of the data on the coordinate plane.
- State the **correlation coefficient (r -value)** to the nearest hundredth, and explain what it suggests in the context of the data.
- Draw a **line of best fit** and determine the **linear regression equation** that best represents the line. Round parameters to the nearest tenth.



- Use the linear regression equation from part c to predict the unit test average of someone who has a homework average of 90. Predict the unit test average of someone with a homework average of 50.

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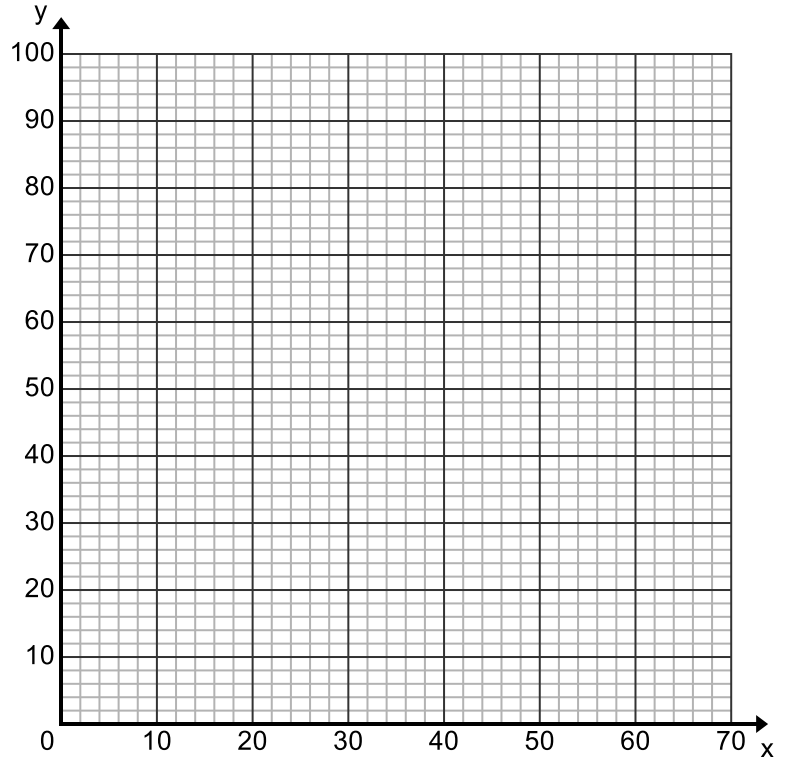
Algebra 1

I. Absences vs. Grades (period 3, blue class)

Days Absent	37	7	64	15	7	2	10	15	10	19	19	63	14	16
Average	72	84	26	62	49	64	71	91	78	77	84	24	75	77

11	8	5	3	26	0	2	8							
55	64	94	87	87	72	77	81							

- Create a **Scatter Plot** of the data on the coordinate plane.
- State the **correlation coefficient (r-value)** to the nearest hundredth, and explain what it suggests in the context of the data.
- Draw a **line of best fit** and determine the **linear regression equation** that best represents the line. Round parameters to the nearest tenth.



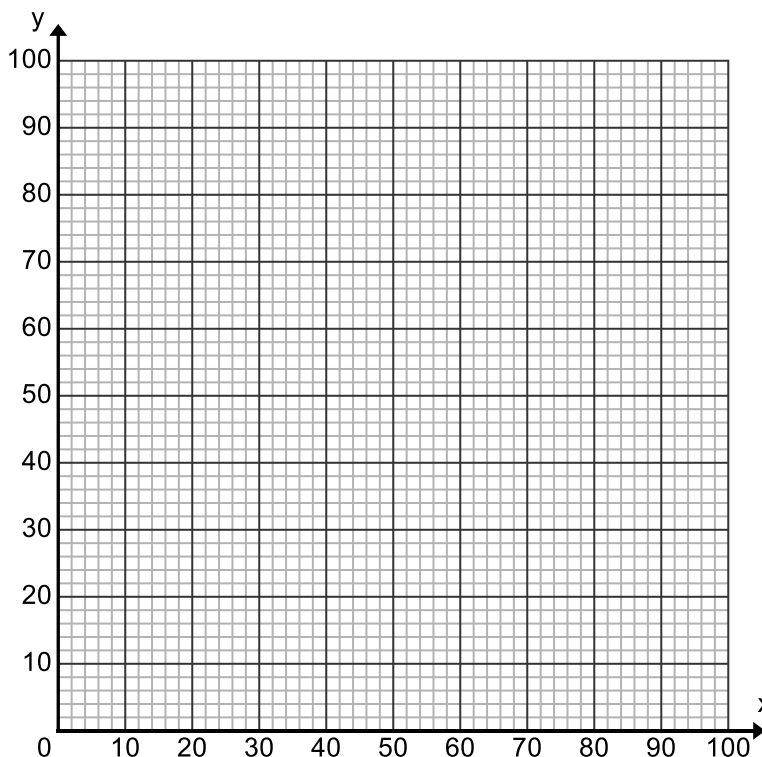
- Use the linear regression equation from part c to predict the average of someone who has 5 absence. Predict the number of absences of someone with an average of 45.

II. Homework Average vs. Unit Test Average (period 3, blue class)

Homework	41	95	16	88	36	82	87	100	89	66	76	10	69	87
Unit Tests	83	80	17	55	52	60	67	82	73	77	83	13	60	72

70	67	102	92	81	86	80	94						
44	61	90	87	83	64	79	81						

- Create a **Scatter Plot** of the data on the coordinate plane.
- State the **correlation coefficient (r -value)** to the nearest hundredth, and explain what it suggests in the context of the data.
- Draw a **line of best fit** and determine the **linear regression equation** that best represents the line. Round parameters to the nearest tenth.



- Use the linear regression equation from part c to predict the unit test average of someone who has a homework average of 90. Predict the unit test average of someone with a homework average of 50.

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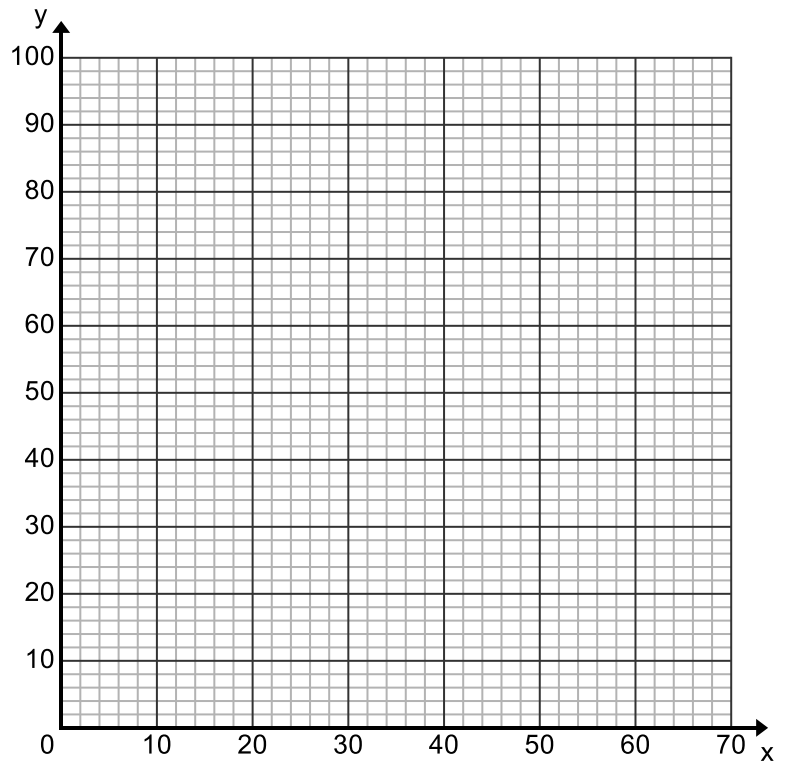
Algebra 1

I. Absences vs. Grades (period 8, yellow class)

Days Absent	3	3	6	2	11	4	17	49	8	4	5	10	2	18
Average	60	97	96	62	30	76	70	27	76	85	91	57	90	68

6	3	1	0	32	28	5	3	34	22				
80	100	79	86	35	78	98	79	37	71				

- Create a **Scatter Plot** of the data on the coordinate plane.
- State the **correlation coefficient (r-value)** to the nearest hundredth, and explain what it suggests in the context of the data.
- Draw a **line of best fit** and determine the **linear regression equation** that best represents the line. Round parameters to the nearest tenth.



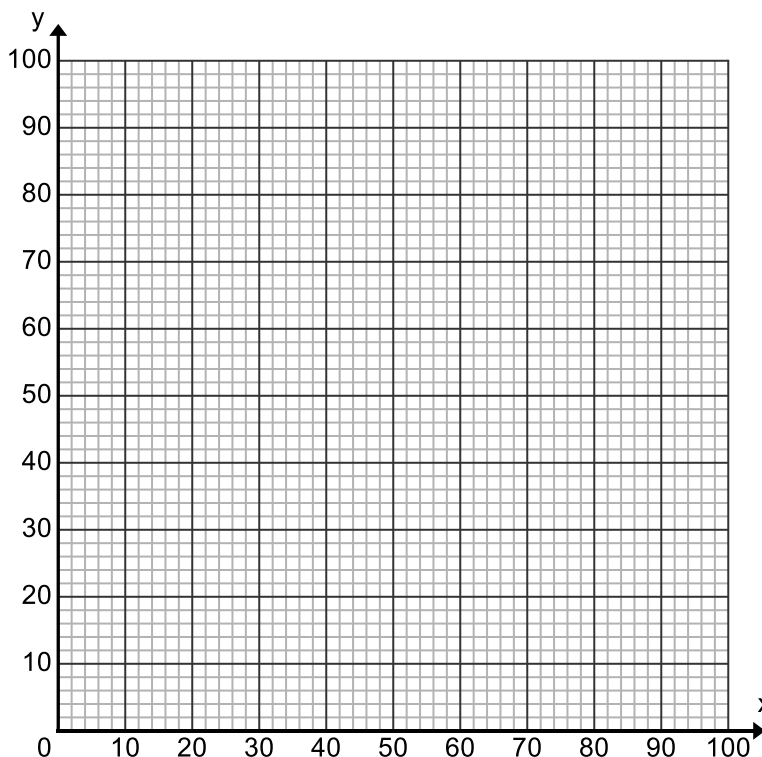
- Use the linear regression equation from part c to predict the average of someone who has 5 absence. Predict the number of absences of someone with an average of 45.

II. Homework Average vs. Unit Test Average (period 8, yellow class)

Homework	70	98	102	69	32	71	43	14	26	90	93	74	100	72
Unit Tests	57	93	94	62	17	82	79	12	95	84	91	58	87	72

90	103	82	83	24	69	97	76	21					
78	100	82	85	26	85	99	83	32					

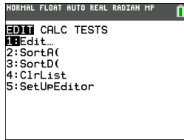
- Create a **Scatter Plot** of the data on the coordinate plane.
- State the **correlation coefficient (r -value)** to the nearest hundredth, and explain what it suggests in the context of the data.
- Draw a **line of best fit** and determine the **linear regression equation** that best represents the line. Round parameters to the nearest tenth.



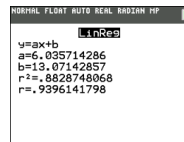
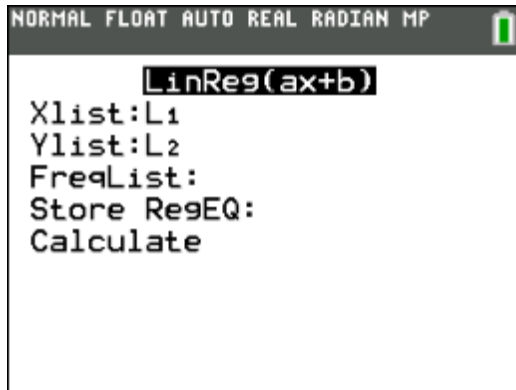
- Use the linear regression equation from part c to predict the unit test average of someone who has a homework average of 90. Predict the unit test average of someone with a homework average of 50.

To have the calculator determine a Regression Equation to represent the data...

1. Press the **STAT** button and right arrow to **CALC**.
2. Arrow down to the appropriate regression and press **ENTER**.
4: LinReg(ax+b) **5: QuadReg** **0: ExpReg**



3. Arrow down to calculate and press **ENTER** (ensure **X list:** reads **L1** and **Y list:** reads **L2**).



To see the line (or curve) of best fit overlaid onto the scatter plot...

1. Press the **Y=** button and enter the regression equation manually into **Y1**.
2. Press the **GRAPH** button.

