

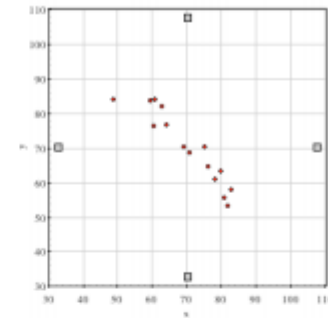
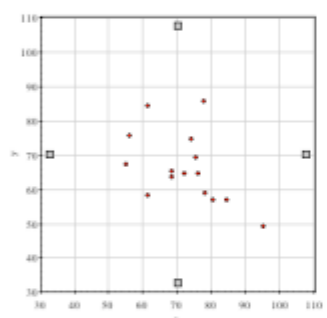
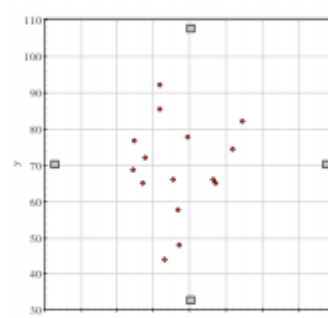
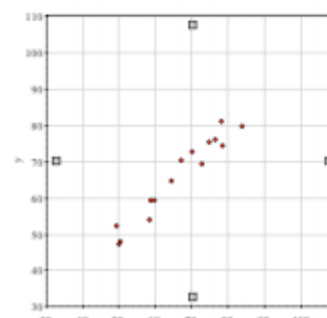
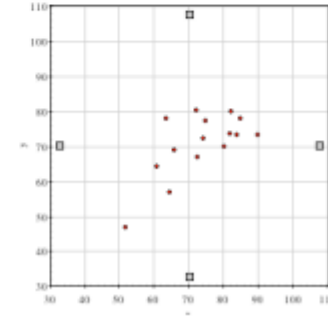
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**HW 7-6 HONORS: Correlation Coefficient**

- 1) What is a correlation coefficient?
- 2) What would a correlation coefficient of 0 tell you about the graph of the data?
- 3) What would a correlation coefficient of 1 tell you about the graph of the data?
- 4) What would a correlation coefficient of -1 tell you about the graph of the data?

Match the scatterplot with its correlation coefficient.

<p>5. 0.05</p> <p>6. 0.97</p> <p>7. -0.94</p> <p>8. -0.49</p> <p>9. 0.68</p>	<p>A.</p> 
<p>B.</p> 	<p>C.</p> 
<p>D.</p> 	<p>E.</p> 

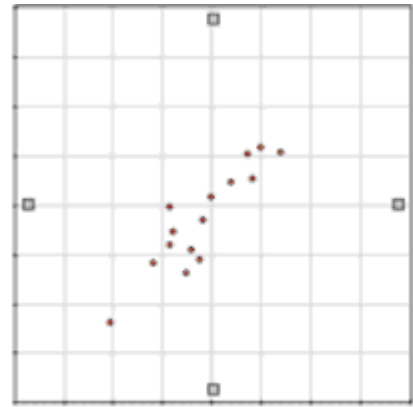
10. The scatter plot to the right compares shoe size and height in adult males. Based on the graph, do you think there is a relationship between a man's shoe size and his height?

Why or why not?

11. What range do you think the correlation coefficient for this graph would fall between?

- a) -1 to -.5
- b) -.5 to 0
- c) 0 to .5
- d) .5 to 1

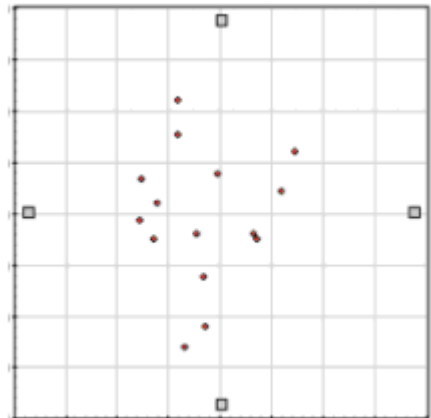
Explain why you picked that range.



12. The scatter plot to the right compares left-handedness to birth weight. Based on the graph, do you think being left-handed is related to a person's birth weight?

Why or why not?

13. Make your best guess of the correlation coefficient for the graph. Explain why you chose that number.



**Calculator**

For question #14 - 20 use the following data of the approximate body length of a Panda.

Body Length of Panda

Age (months)	1	2	3	4	5	6	8	9
Body Length (in.)	8.0	11.75	15.5	16.7	20.1	22.2	26.5	29.0

14. Find the equation for the linear regression line.

15. Identify the correlation coefficient

16. What does #15 tell you about the correlation?

17. What does the slope tell you about the situation?

18. What does the y-intercept tell you about the situation?

19. Predict the length of an 11-month-old panda using the linear regression equation.

20. Predict how old a panda will be when it is 65 inches long using the linear regression equation.

**Calculator**

For question #21 - 27 use the following data of Movie Tickets Sold in the U.S. by Year.

Movie Tickets Sold in the U.S. by Year

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006
Tickets Sold (in million)	1289	1311	1340	1339	1406	1421	1470	1415	1472

**Let  $x$  be the number of years since 1998**

21. Find the equation for the linear regression line.

22. Find the correlation coefficient

23. What does  $r$  tell you about the correlation?

24. What does the slope tell you about the situation?

25. What does the y-intercept tell you about the situation?

26. Predict what year the movie sales will reach 1500( in millions) using your linear regression line?

27. What would you expect the movie sales to be in 2015?

The table shows the number of miles Hannah jogged each day for 10 days. Use the linear regression information to answer the following questions.

Day	1	2	3	4	5	6	7	8	9	10
Miles Jogged	2	2	3	3.5	4	4.5	2.5	3	4	5

28. Write the equation of the linear regression line for the situation.

29. What does the slope tell us about the story?

30. What does the  $y$  - intercept tell us about the story? Does it make sense?

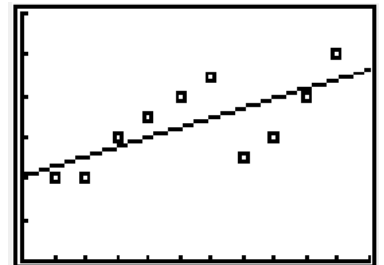
31. Using you regression equation, predict how many miles Hannah would jog on the 15<sup>th</sup> day.

32. Identify the correlation coefficient for the situation.

33. Interpret the correlation coefficient. (Strength & Direction)

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LinReg
y=ax+b
a=.233333333333333
b=2.06666666667
r2=.4715660542
r=.6867066726
    
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The table below shows Ariana's hourly earnings for 2001-2007. Let  $x$  be the number of years since 2000.

Year	2001	2002	2003	2004	2005	2006	2007
Hourly earnings (Dollars)	\$10	\$10.50	\$11	\$13	\$15	\$15.75	\$16.50

34. Write the equation of the linear regression line for the situation.

35. What does the slope tell us about the story?

36. What does the  $y$  - intercept tell us about the story?

37. Using you regression equation, predict Ariana's hourly earnings in 2015.

38. Identify the correlation coefficient for the situation.

39. Interpret the correlation coefficient. (Strength & Direction)

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LinReg
y=ax+b
a=1.214285714
b=8.25
r2=.9605317823
r=.9800672336
    
```

