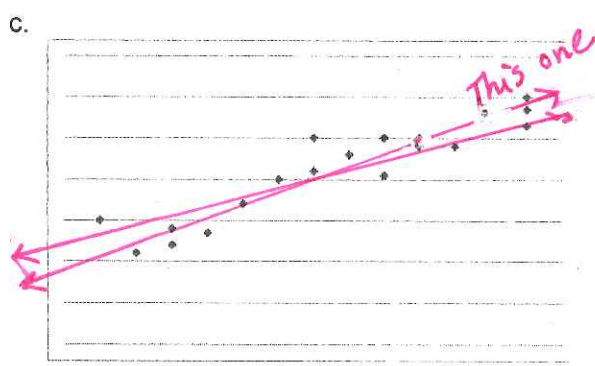
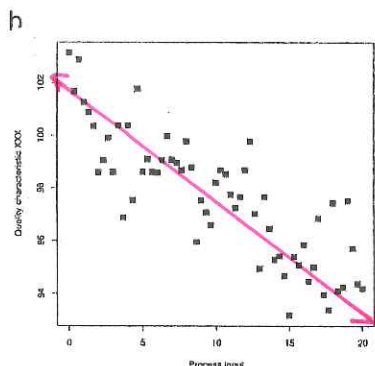
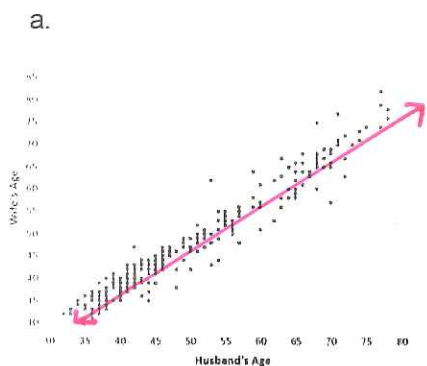


1. Draw the best fitting line through the data on each scatterplot.



3. The table shows the income for an employee over his first 8 years of work. Use linear regression on this data to predict his income for his 15<sup>th</sup> year of work.

Years	1	2	3	4	5	6	7	8
Income	45,000	46,814	48,212	52,870	54,125	58,532	61,075	62,785

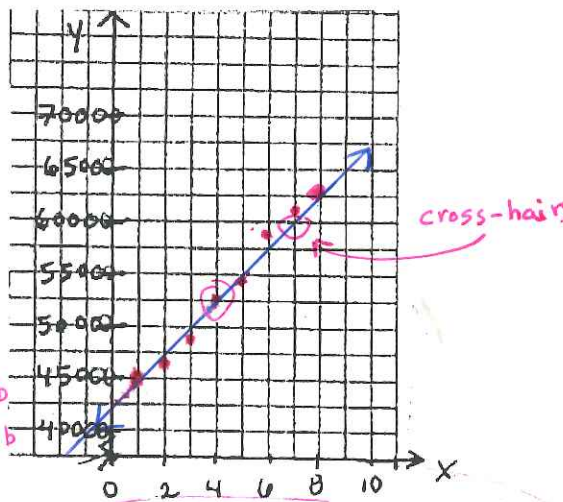
- Make a scatter plot of the data on graph at right.
- Draw a best-fitting line through the data.
- Choose 2 points that lie on your best-fitting line.

Point #1 (4, 52,870)  
 Point #2 (7, 60,000)

d. Write the equation of the best-fitting line using your 2 points.

$$\frac{60,000 - 52,870}{7 - 4} = \frac{7130}{3} = 2,376.67$$

*(plug in point)*  $60,000 = 2376.67(7) + b$   
 $43363.33 = b$



e. Use your equation to predict the income in the 15<sup>th</sup> year.

$$2376.67(15) + 43363.33$$

$$y = \frac{2376.67}{m}x + \frac{43363.33}{b}$$

82,178.44 perfection

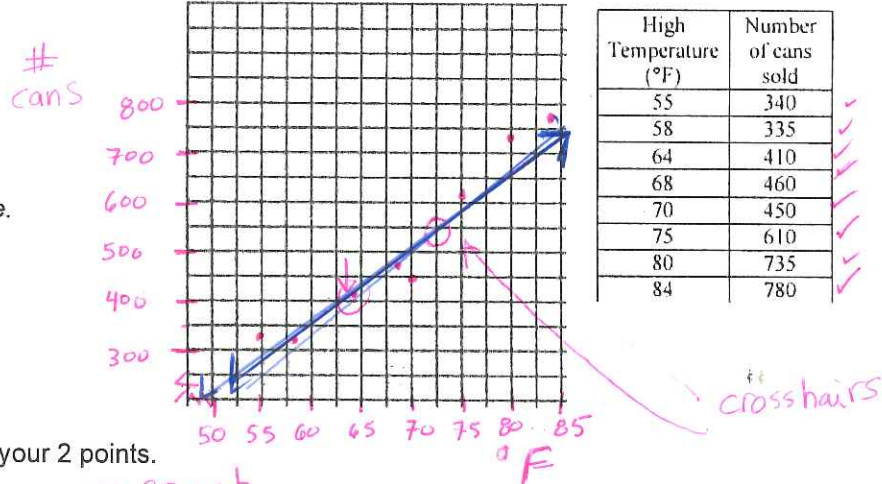
\$ 79,013.38

$y = 2714.46x + 41461.54$  perfection

4. A convenience store manager notices that sales of soft drinks are higher on hotter days. She assembles the data in the table. Use your best-fitting equation to predict the number of cans of soda that will be sold when the temperature is 78°

- Make a scatter plot of the data on graph at right & draw best-fit line.
- Choose 2 points that lie on your best-fitting line.

Point #1 (72.5, 550)  
 Point #2 (68, 460)



c. Write the equation of the best-fitting line using your 2 points.

$$\frac{460 - 550}{68 - 72.5} = \frac{-90}{-4.5} = 20$$

$y = 20x + b$   
*(plug in point)*  $460 = 20(68) + b$

$$y = 20x - 900$$

d. Use your equation to predict the number of cans sold at 78°.

$$y = 20(78) - 900 = 660 \text{ cans}$$

X-value

658.83 cans perfection

$y = 16.42x - 621.83$  perfection