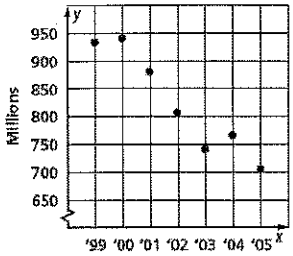
Name _____ Hour_____ Date_____

Scatter Plots and Lines of Best Fit Worksheet

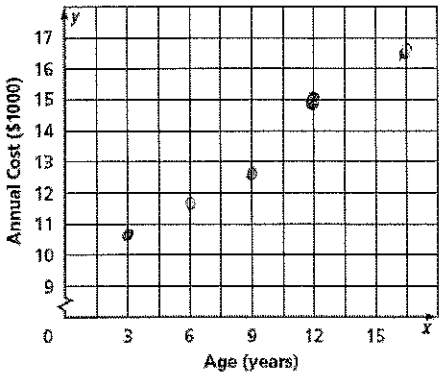
1. **MUSIC** The scatter plot shows the number of CDs (in millions) that were sold from 1999 to 2005. If the trend continued, about how many CDs were sold in 2006?



about 675 CDs

2. **FAMILY** The table below shows the predicted annual cost for a middle income family to raise a child from birth until adulthood. Draw a scatter plot and describe what relationship exists within the data.

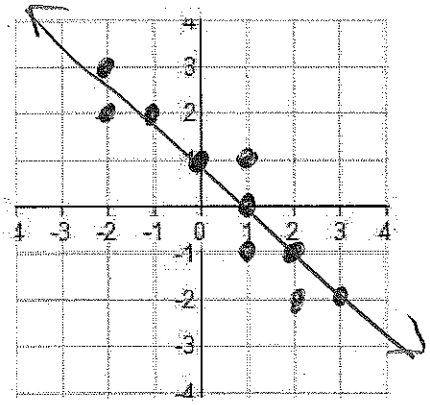
Cost of Raising a Child Born in 2003					
Child's Age	3	6	9	12	15
Annual Cost ($)	10,700	11,700	12,600	15,000	16,700



Positive correlation

3. Make a scatter plot of the data in the table. Draw a line of best fit. What is the equation of the line of best fit?

x	-2	-2	-1	0	1	1	1	2	2	3
y	2	3	2	1	0	1	-1	-1	-2	-2



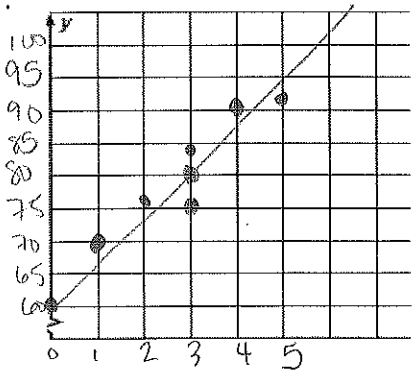
estimate
$m = -1$
$y = -x + 1$

calculate
$y = -.962x + .781$

4. **EDUCATION** The table at the right gives the number of hours spent studying for a science exam and the final exam grade.

Study Hours	3	2	5	1	0	4	3
Grade	84	77	92	70	60	90	75

a. Draw a scatter plot of the data and draw in the line of best fit.



b. What is the equation for the line of best fit?

estimate
$m = 2$
$y = 2x + 60$

calculate
$y = 6.31x + 62$

c. Predict the grade for a student who studied for 6 hours.

≈ 99.94

d. Could this line go on forever? Why or why not?

no because generally you can't earn more than 100%

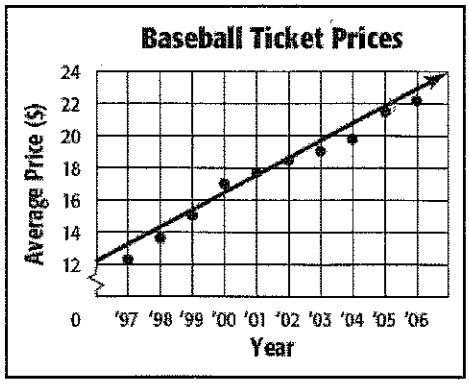
5. **BASEBALL** The scatter plot shows the average price of a major-league baseball ticket from 1997 to 2006.

a. Use the points (2001, 17.60) and (2002, 18.75) to write the slope-intercept form of equation for the line of fit shown in the scatter plot.

$m = \frac{17.6 - 18.75}{2001 - 2002} = \frac{-1.15}{-1} = 1.15$

$y - 17.6 = 1.15(x - 2001)$

$y = 1.15x - 2283.55$



Source: Team Marketing Report, Chicago

b. Use your equation to tell the price of a ticket in 2009. ~~Is this extrapolation or interpolation?~~

$y = 1.15(2009) - 2283.55$

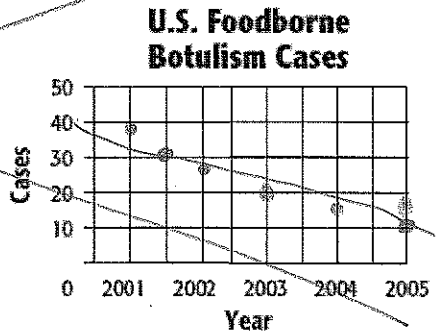
$\$26.80$ for a tix in '09

6. **DISEASE** The table shows the number of cases of Foodborne Botulism in the United States for the years 2001 to 2005.

U.S. Foodborne Botulism Cases					
Year	2001	2002	2003	2004	2005
Cases	39	28	20	16	18

a. Draw a scatter plot and determine, what relationship, if any, exists in the data.

Negative correlation



b. Draw a line of fit for the scatter plot, and write the slope-intercept form of an equation for the line of fit.

calculate

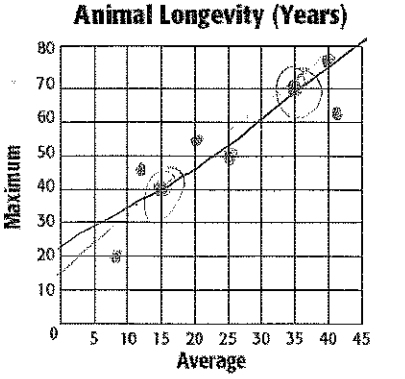
$y = -5.4 + 10800$

7. **ZOOS** The table shows the average and maximum longevity of various animals in captivity.

Longevity (years)								
Avg.	12	25	15	8	35	40	41	20
Max.	47	50	40	20	70	77	61	54

a. Draw a scatter plot and determine, what relationship, if any, exists in the data.

Positive correlation



b. Draw a line of fit for the scatter plot, and write the slope-intercept form of an equation for the line of fit.

estimate

$m = \frac{40 - 70}{15 - 35} = \frac{-30}{-20} = \frac{3}{2}$

$y - 40 = \frac{3}{2}(x - 15)$

$y = \frac{3}{2}x + 17.5$

calculate

$y = 1.22 + 22.4$

c. Predict the maximum longevity for an animal with an average longevity of 33 years. ~~Is this an example of Extrapolation or Interpolation?~~

≈ 62.76 max