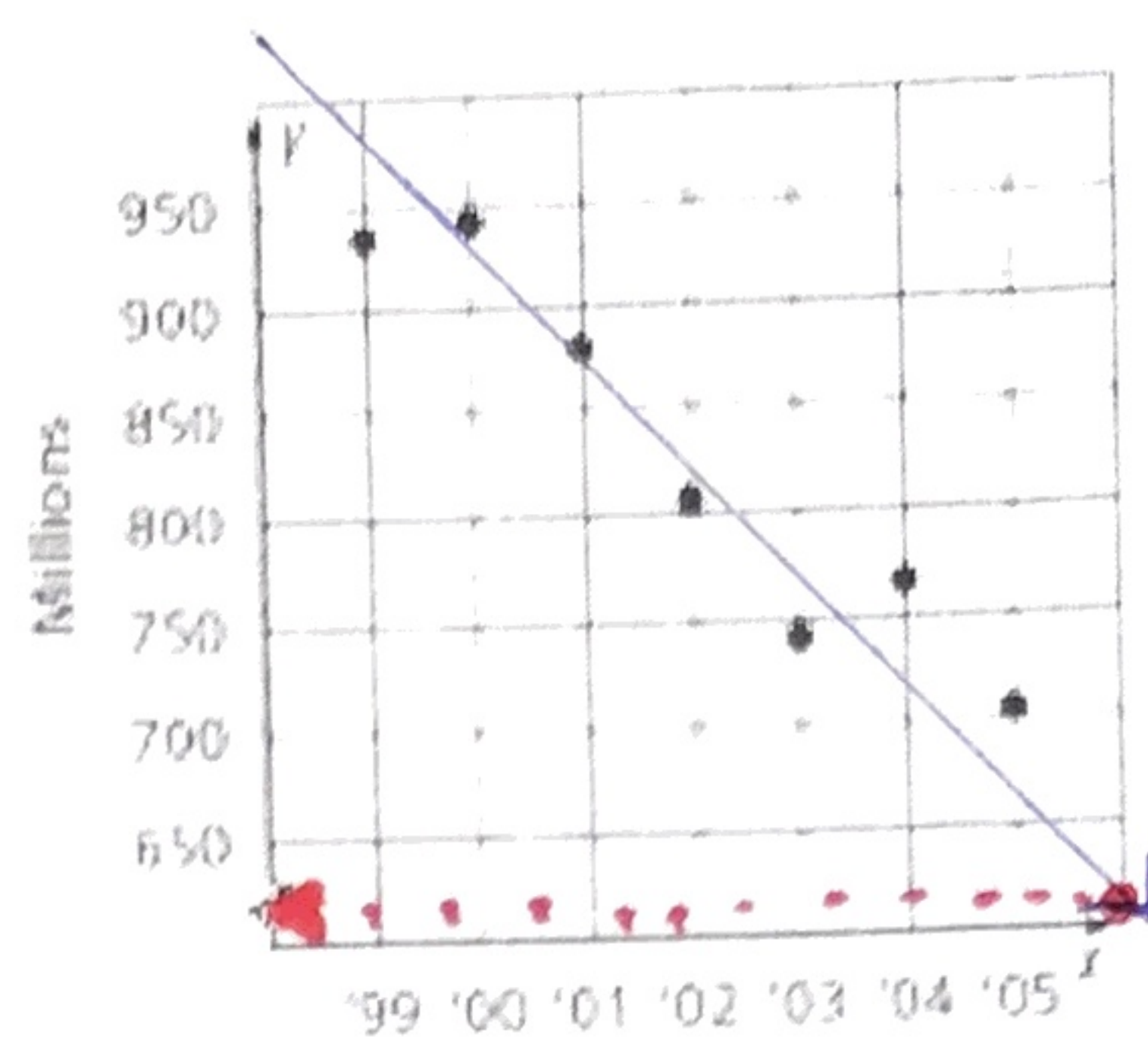Name: **Kelly**   Date: _____

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? <u>Draw the line you used.</u>

Is this interpolation or extrapolation?

around 600 million

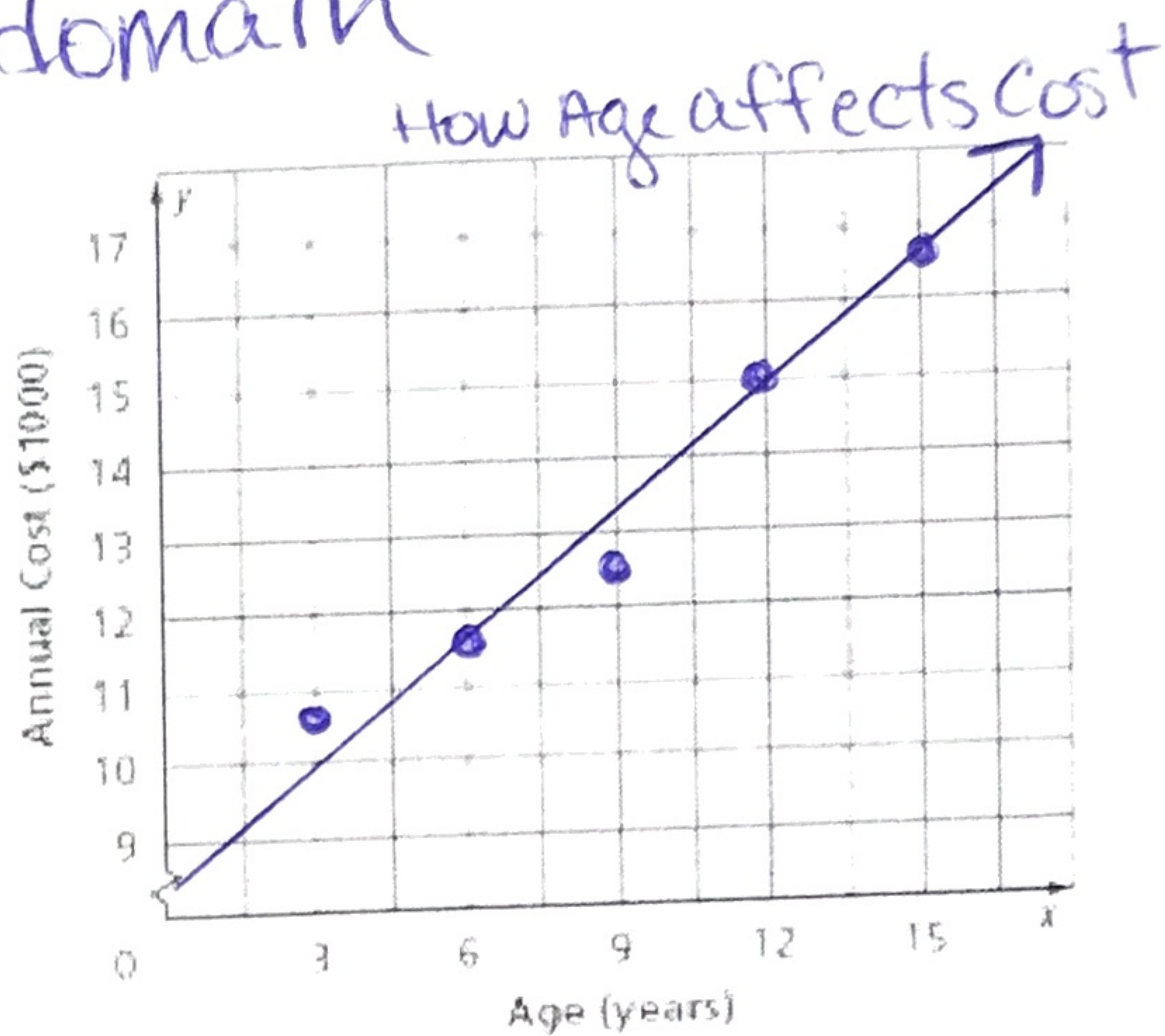**Extrapolation** b/c the domain ended at '05 so '06 is outside the domain

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.

Then, draw a trend line.

As the age increases, the cost goes up. So its a positive, strong(r≈0.8), ∉linear correlation

How Age affects cost

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

3. 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.

How time studying affects grades

b. Explain why going through the points (0, 60) and (5, 92) does not create a good line of best fit.
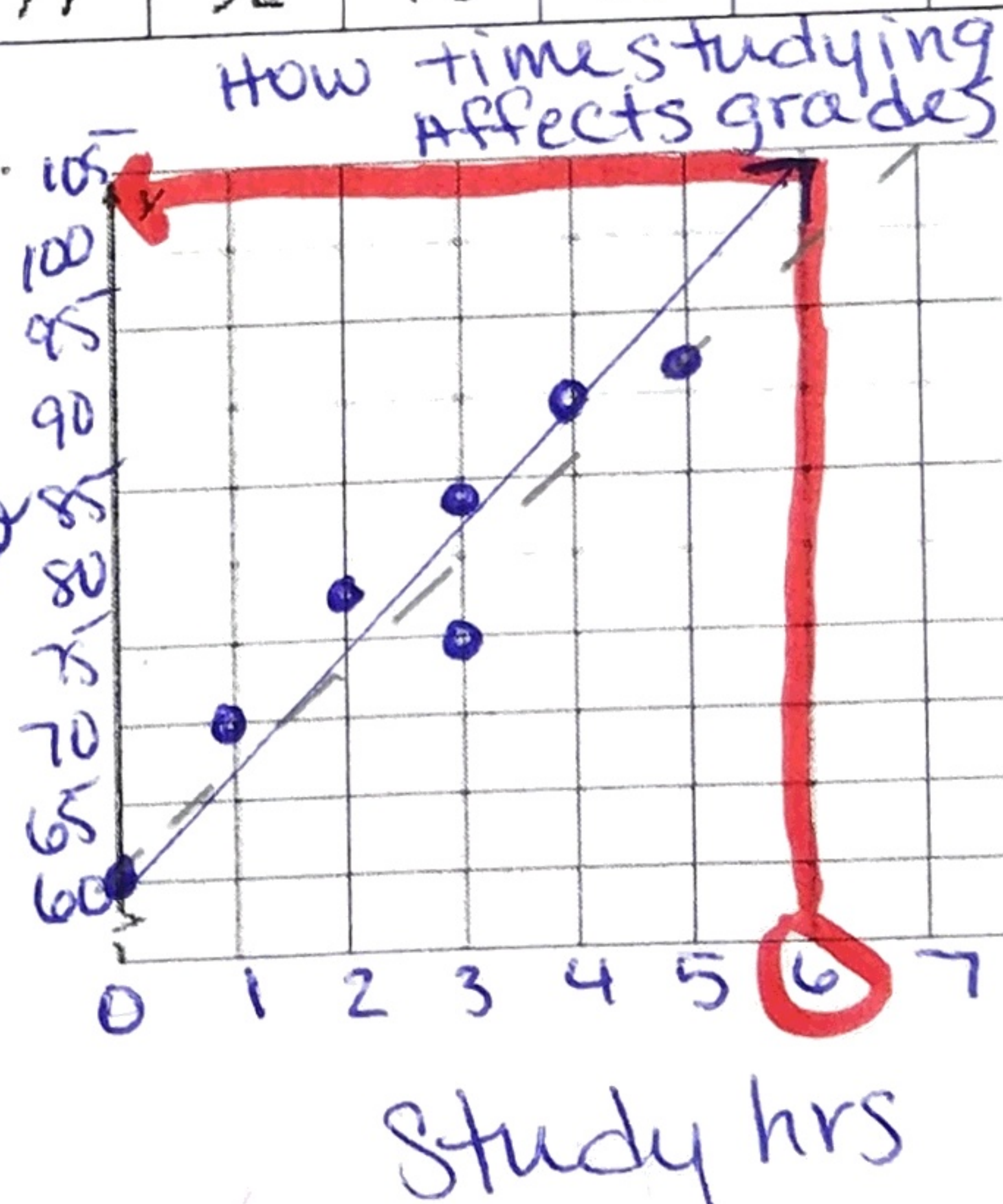
The line in pencil is <u>not a good line</u> b/c 4 points would have positive residuals & only 1 would have a negative residual.

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

104%

d. Did you interpolate or extrapolate? Explain.

Extrapolate. The domain ends at 5 hrs. so 6 hrs. is outside the data set.

Study hrs

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

No. While the domain (time spent studying) could go for a <u>looong</u> time, the range (grade) usually doesn't go much past 100%

4. The table at below shows the number of toys sold by the Mattel Toy Company during the 2000's.
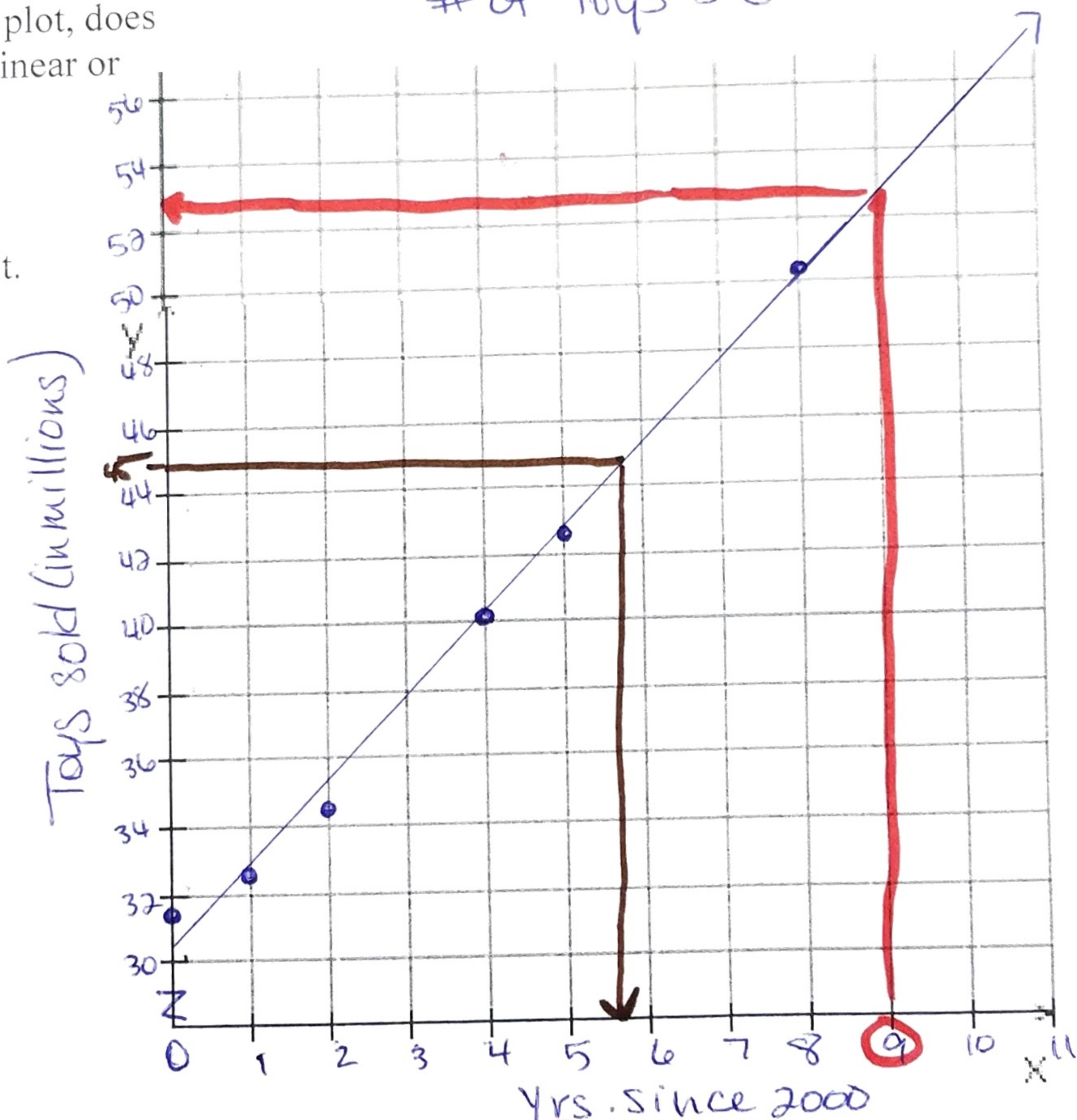
Years since 2000	0	1	2	4	5	8
Toys sold (in millions)	31.6	32.8	34.6	40.1	42.7	50.3

How yrs. since 2000 affects # of toys sold

a) After making a scatter plot, does this data appear to be linear or non-linear?

linear

a) Draw a line of best fit.

Toys sold (in millions)

Yrs. since 2000

b) Use the line to estimate how many toys were sold in 2009. Did you interpolate or extrapolate? Explain. **52.8 million**

Extrapolated. The domain ends at 2008 so 2009 is outside the domain.

c) Use the line to estimate in what year did Mattel sold 45 million toys. Was this interpolated or extrapolated? Explain. around 2006

Interpolated. The range is from 31.6 to 50.3. 45 is inside the range.