

Algebra 1

4.6

$$y = mx + B$$

Write equations of best-fit lines using linear regression technology: VTI (graphing calculator app)

★ or checkout graphing calc

Instructions are technical but not difficult:

take good notes, also see p

255 step by step +
will post class notes online in the usual place *handout*

best-fit line

eyeball → $y = mx + B$

* linear regression equation

APP

~~median-fit line~~

correlation coefficient (r)

Partner work

$$a = m = 1.87$$
$$B = 28.58$$

$$r = .61$$

Guided Practice

Write an equation of the best-fit line for the data in each table. Name the correlation coefficient. Round to the nearest ten-thousandth. Let x be the number of years since 2003.

- 1A. **HOCKEY** The table shows the number of goals of leading scorers for the Mustang Girls Hockey Team.

L1

L2

Year	2003	2004	2005	2006	2007	2008	2009	2010
Goals	30	23	41	35	31	43	33	45

$$y = 1.87x + 28.58$$



Write by hand
Use GC (handout)

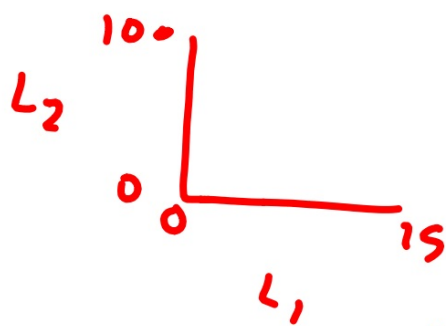
1B. **HOCKEY** The table gives the number of goals scored by the team each season.

Handwritten: years since 2000

Handwritten: -1.5 0 1.5

Handwritten: meh .5

<i>L1</i>	Year	2003	2004	2005	2006	2007	2008	2009	2010
<i>L2</i>	Goals	63	44	55	63	81	85	93	84



$$a = 5.95$$

$$b = 32.31$$

$$r = 0.85$$

$$y = 5.95x + 32.31$$

correlation:

$$a = -3.32 \quad B = 105.33 \quad r = 0.76$$



Real-World Example 3 Use Interpolation and Extrapolation

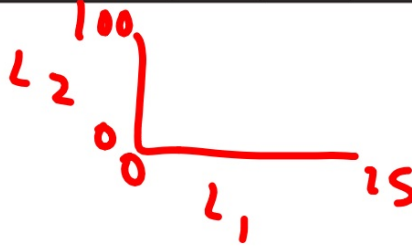
PAINTBALL The table shows the points received by the top ten paintball teams at a tournament. Estimate how many points the 20th-ranked team received.

L_1

L_2

Rank	1	2	3	4	5	6	7	8	9	10
Score	100	89	96	99	97	98	78	70	64	80

Write the equation (calculator)
Answer the question



Disregard median-fit, use linreg



Example 4 Median-Fit Line

PAINTBALL Find and graph the equation of a ~~median-fit line~~ for the data in Example 3. Then predict the score of the 15th ranked team.

Another type of calculation, gives almost same answer as linear regression.

Disregard median-fit instructions and do linear regression instead.