Algebra 1 4.6

Write equations of best-fit lines using linear regression

technology: VTI (graphing calculator app)

Instructions are technical but not difficult:

take good notes, also see p. 2SS

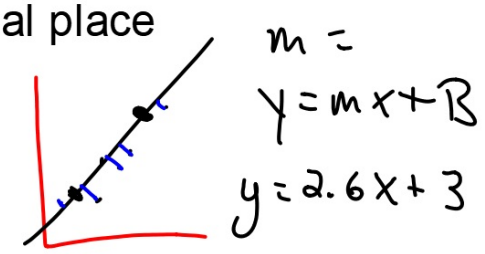
will post class notes online in the usual place

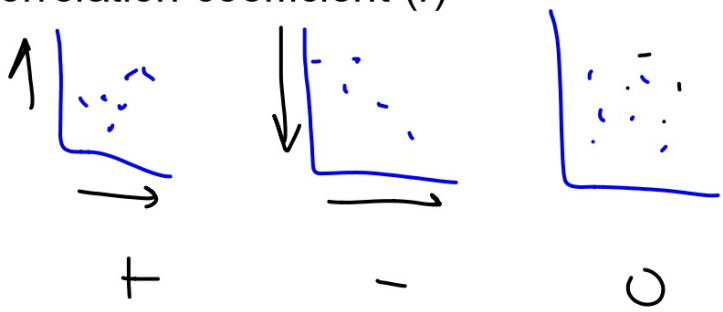
best-fit line by hand $y=mx+B$

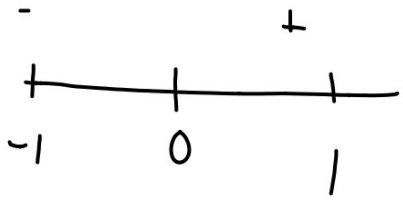
→ linear regression equation calculus

~~median-fit line~~

correlation coefficient (r)







Partner work

$y = mx + B$

$r =$

GuidedPractice

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.

4

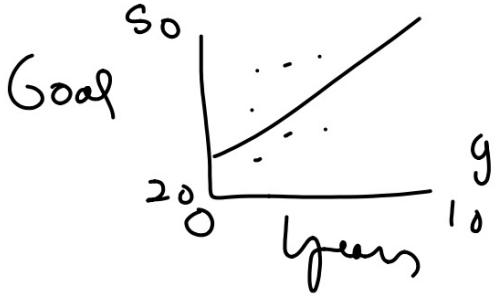
$r = 0.6142$

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

x

y

Year	2003 (0)	2004 (1)	2005 (2)	2006 (3)	2007 (4)	2008 (5)	2009 (6)	2010 (7)
Goals	30	23	41	35	31	43	33	45



$y = 1.8690x + 28.5833$

goals $= 1.8690(\text{yr}) + 28.5833$

VT1

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

	0	1	2	3	4	5	6	7
Year	2003	2004	2005	2006	2007	2008	2009	2010
Goals	63	44	55	63	81	85	93	84

$y = 5.9524x + 50.1666$

$r = 0.8495$

correlation:

Year

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.

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.