Scatter Plots + Correlation

Ex. Regression results.

Anna's homemade stand

Predictor	Coef	SE Coef	T	P
Constant	-33.704 (b0) y-intercept	0.134	20.678	0.000
Temp	0.6012 slope (b)	0.057	4.0456	0.004

S = 1.926 R-Sq = 67.168% R-Sq(adj) = 60.581%

$\sqrt{67} \sim 0.82$

↳ Strong + corr.

$\hat{y} = a + bx$ (y-int, slope) $y = mx + b$

Least Squares Regression Line Basics

Ex. $\hat{y} = a + bx$

$\hat{y} = -33.704 + 0.6012(85)$

$= 17.398$

≈ 17

Graph Ex. Attendance

GPA Seniors	SD	Abse	SD
2.9	0.3	5	1.2

Corr. $r = -0.65$

$\hat{y} = a + bx$ ← Abs

GPA

$b = r \frac{s_y}{s_x}$

$= -0.65 \left(\frac{0.3}{1.2}\right)$

$b = -0.162500$

Plug-in $2.9 = a + (-0.1625)5$

$a = 3.7125$

Calculating eq of least-squares line

- $\bar{x} = 2.5$ $s_x = 0.3$ $r = -0.95$
  $\bar{y} = 41.7$ $s_y = 42$

$$b_x = -0.95\left(\frac{42}{0.3}\right) = -133$$

$$a = 41.7 - (-133 \cdot 2.5) = 374.2$$