

Scatterplots - Line of Best fit

① $\boxed{2^{nd}}$ $\boxed{0}$ ^{catalog} Diagnostics ON

② \boxed{STAT} \Rightarrow \boxed{EDIT}

Put data into $\left(L1 + L2 \right)$
 $\left(x\text{-values} \right) \left(y\text{-values} \right)$

③ \boxed{STAT} \Rightarrow \boxed{CALC} \Rightarrow #4 LinReg (ax+b)

Equation of line

$a = \text{slope}$

$b = y\text{-intercept}$

$$y = ax + b$$

④ $r = \text{correlation coefficient}$

$|r| \geq 0.8$ is good fit

★ MAKE SURE PLOTS ARE ON TO SEE SCATTERPLOT

$\boxed{2^{nd}}$ $\boxed{Y=}$ Statplot, turn plots 1 ON

\boxed{WINDOW} change min + max for x + y axes

\boxed{GRAPH} See scatterplot

★ PUT Equation on graph

$\boxed{Y=}$ \rightarrow \boxed{VARS} \rightarrow Statistics #5 \rightarrow EQ \rightarrow #1 REGEQ

\boxed{GRAPH} See line in scatterplot



Real-World Connection

The 500-meter men's speed skating race has been an Olympic event since 1924.

9. Olympic 500-Meter Men's Gold Medal Speed Skating Times

Year	1980	1984	1988	1992	1994	1998
Time (seconds)	422	432	404	420	395	382

SOURCE: International Skating Union


10. Average Male Lung Power

Respiration (breaths/min)	50	30	25	20	18	16	14
Heart Rate (beats/min)	200	150	140	130	120	110	100

SOURCE: Encyclopedia Britannica

11. Wind Chill Temperature for 15 mi/h Wind

Air Temp. (°F)	35	30	25	20	15	10	5	0
Wind-Chill Temp. (°F)	16	9	2	-5	-11	-18	-25	-31

 **Graphing Calculator** Use a graphing calculator to find the equation of the line of best fit for the data. Find the value of the correlation coefficient r .

6. Graph the data for the average July temperature and the annual precipitation of the cities in the table below. Find an equation for the line of best fit of the data. Estimate the average rainfall for a city with average July temperature of 75° F.

Precipitation and Temperature in Selected Eastern Cities

City	Average July Temperature ($^{\circ}$ F)	Average Annual Precipitation (in.)
New York	76.4	42.82
Baltimore	76.8	41.84
Atlanta	78.6	48.61
Jacksonville	81.3	52.76
Washington, D.C.	78.9	39.00
Boston	73.5	43.81
Miami	82.5	57.55

SOURCE: Time Almanac

7. **Average Temperatures in Northern Latitudes**

Latitude ($^{\circ}$ N)	0	10	20	30	40	50	60	70	80
Temp. ($^{\circ}$ F)	79.2	80.1	77.5	68.7	57.4	42.4	30.0	12.7	1.0

8. **Retail Department Store Sales (billions of dollars)**

Year	1980	1985	1990	1994	1995	1996	1997	1998
Sales	86	126	166	217	231	245	261	279

SOURCE: Statistical Abstract of the United States.

Go to www.PHSchool.com for an update.

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