3.5/3.6 SCATTER PLOTS
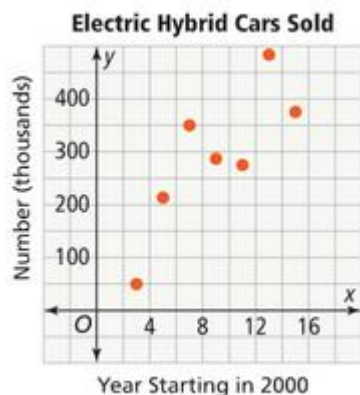
Example Write the Equation of a Trend Line or Line of Best Fit

Step 1 Sketch a Line of Best Fit for the Data

Step 2 Write the equation of this line

Electric Hybrid Cars Sold

Number (thousands) vs Year Starting in 2000

Select two points on or close to the line and find the slope $(m = \frac{y_2 - y_1}{x_2 - x_1})$ between them.

Use the slope and one point to write the equation in point-slope form $y - y_1 = m(x - x_1)$

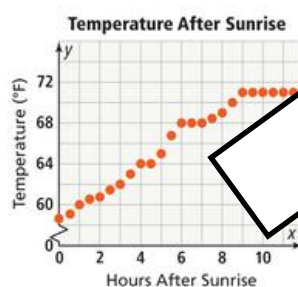Transform point-slope form to slope-intercept form $y = mx + b$

Example Understanding Correlation and Correlation Coefficient

Temperature After Sunrise

Temperature (°F) vs Hours After Sunrise

$0 < r \leq 1$
Closer to 1, the stronger the positive correlation

Temperature After Sunset

Temperature (°F) vs Hours After Sunset

$-1 \leq r \leq 0$
Closer to -1, the stronger the negative correlation

Rainfall After Sunset

Amount of Rainfall (in.) vs Hours After Sunset

r-values close to 0 have weak correlation

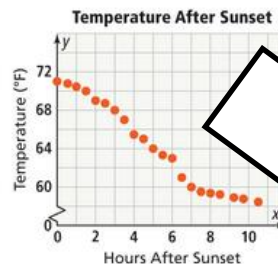**Example** Interpret a Line of Best Fit

Louisa starts training for cross country. She records how far she can run without stopping each week. She finds her line of best fit for her data is $y = 0.31x + 0.54$.

a) According to her line of best fit, how far could Louisa run without training? What part of the graph tells this?

b) According to her line of best fit, how much more does she run each week? What part of the equation tells this?

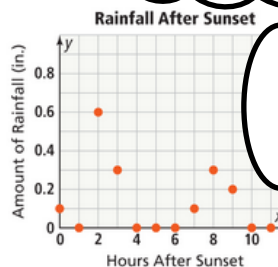c) To make the team Louisa needs to be able to run at least 3 miles. How many weeks will this take?