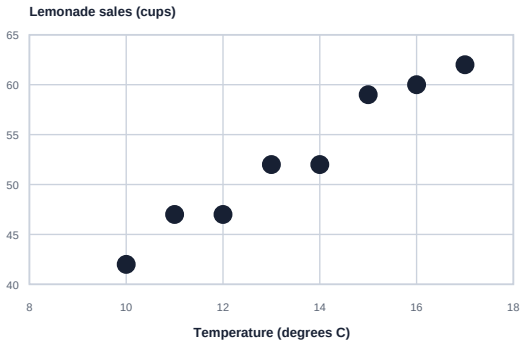


Linear Regression and Residuals

Fit an ordinary least-squares line with an intercept from the displayed pairs. Keep full precision until the final answer; residual equals observed y minus predicted y.

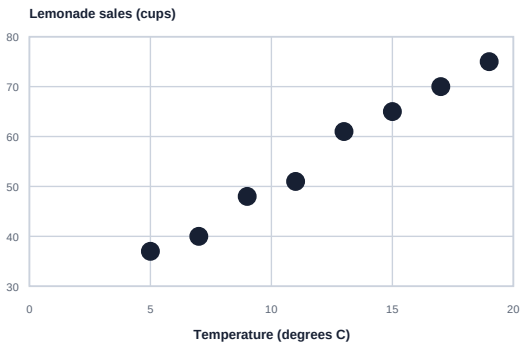
1. Use the least-squares line to predict lemonade sales when temperature is 14 degrees C. Identify interpolation or extrapolation.

x: Temperature (degrees C)	10	11	12	13	14	15	16	17
y: Lemonade sales (cups)	42	47	47	52	52	59	60	62



2. Find the ordinary least-squares line with an intercept, and draw that fitted line on the scatterplot.

x: Temperature (degrees C)	5	7	9	11	13	15	17	19
y: Lemonade sales (cups)	37	40	48	51	61	65	70	75

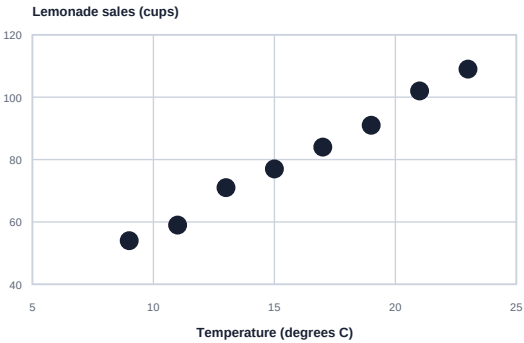


Linear Regression and Residuals

Fit an ordinary least-squares line with an intercept from the displayed pairs. Keep full precision until the final answer; residual equals observed y minus predicted y.

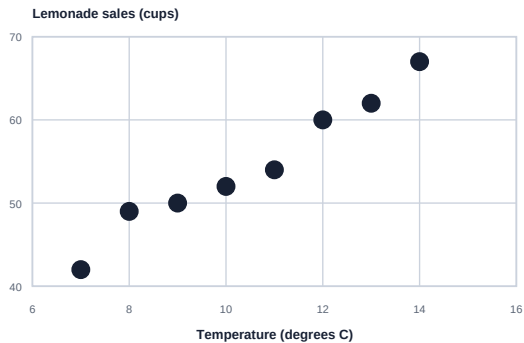
3. Interpret the fitted slope in context, then classify a prediction at x = 29 as interpolation or extrapolation and state a limitation.

x: Temperature (degrees C)	9	11	13	15	17	19	21	23
y: Lemonade sales (cups)	54	59	71	77	84	91	102	109



4. For the observation (12, 60), calculate the residual using observed minus predicted.

x: Temperature (degrees C)	7	8	9	10	11	12	13	14
y: Lemonade sales (cups)	42	49	50	52	54	60	62	67

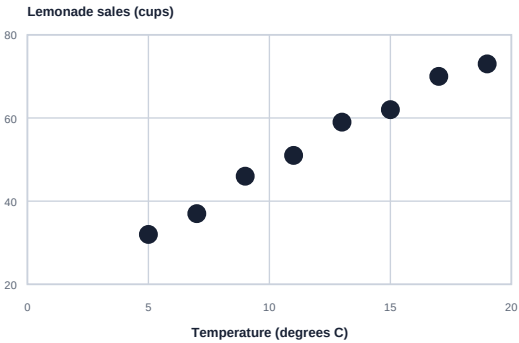


Linear Regression and Residuals

Fit an ordinary least-squares line with an intercept from the displayed pairs. Keep full precision until the final answer; residual equals observed y minus predicted y.

5. Use the least-squares line to predict lemonade sales when temperature is 23 degrees C. Identify interpolation or extrapolation.

x: Temperature (degrees C)	5	7	9	11	13	15	17	19
y: Lemonade sales (cups)	32	37	46	51	59	62	70	73



6. Find the ordinary least-squares line with an intercept, and draw that fitted line on the scatterplot.

x: Temperature (degrees C)	6	7	8	9	10	11	12	13
y: Lemonade sales (cups)	23	29	29	30	31	36	37	41

