Section 9.3: Calculating the Best Fit Line (will not be tested)

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three ways of calculating the linear best-fit line

1. using the "computing formula"
2. matrix algebra (we do this for the Bridge course)
3. technology ← I highly recommend this approach

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computing formula: from your table of (x, y)

calculate $\bar{x}$, s_x, $\bar{y}$, s_y

calculate (z_x, z_y) for each point

then $r = \frac{\Sigma z_x z_y}{n-1}$ $\left[\text{or } r = \frac{\Sigma (x-\bar{x})(y-\bar{y})}{(n-1)s_x s_y}\right]$

so finally

if $y = mx + b$

with $m = r \cdot \frac{s_y}{s_x}$

and y-int $b = \bar{y} - m\bar{x}$

(m: slope you just calculated; $\bar{y}$, $\bar{x}$: means of x & y)

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in actual fact, data usually looks like $(x, y, \Delta y)$

r $(x, \Delta x, y, \Delta y)$