GUESS: Problem Solving Method

Academic Learning Centre

205 Tier

204-480-1481

umanitoba.ca/student/academic learning

Sample Statistics Question

Correlation Between Midterm and Final Exam Scores
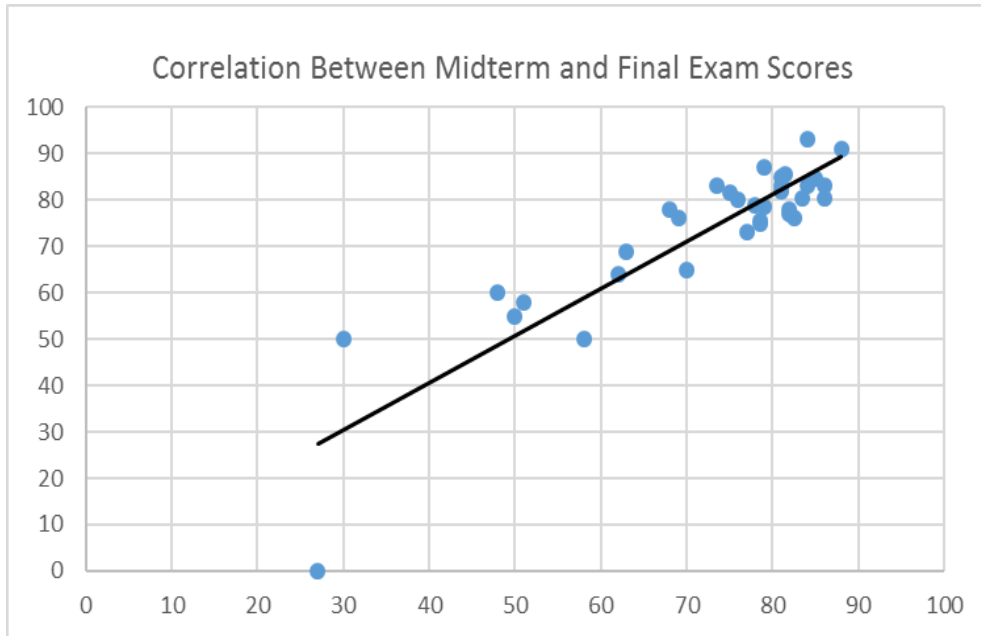
Given

Unknown

Equations

Set-up

Solve

QUESTION: The correlation between student midterm scores and final exam scores is 0.55. The midterm scores for all students has a mean of 85 and a standard deviation of 6, while the final exam has a mean of 70 and standard deviation of 9. Gloria scored 93 on the midterm. **What mark can we predict for her final exam score?**

The correlation between student midterm scores and final exam scores is 0.55. The midterm scores for all students has a mean of 85 and a standard deviation of 6, while the final exam scores has a mean of 70 and standard deviation of 9. Gloria scored 93 on the midterm. **What can we predict her final exam score to be?**

Given:	Correlation (r) = 0.55 Midterm mean ($\bar{x}$) = 85 Midterm Standard deviation (S_x) = 6 Final exam mean ($\bar{y}$) = 70 Final exam Standard deviation (S_y) = 9 Gloria's Midterm score (x) = 93
Unknown:	
Equations:	
Set-up:	
Solve:	

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Unknown:	Intercept (b_0) = ? Slope (b_1) = ? Gloria's Final exam score ($\hat{Y}$) = ?
Equations:	
Set-up:	
Solve:	

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Unknown:	Intercept (b_0) = ? Slope (b_1) = ? Gloria's Final exam score ($\hat{Y}$) = ?
Equations:	$b_1 = r * \dfrac{s_y}{s_x}$ $b_0 = \bar{y} - b_1\bar{x}$ $\hat{Y} = b_0 + b_1x$
Set-up:	
Solve:	

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Set-up:	$b_1 = 0.55 * \dfrac{9}{6}$ **b_1 = 0.825** $b_0 = 70 - 0.825*(85)$ **b_0 = -0.125**
Solve:	

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Set-up:	$b_1 = 0.55 * \dfrac{9}{6}$ **$b_1 = 0.825$** $b_0 = 70 - 0.825*(85)$ **$b_0 = -0.125$**
Solve:	$\hat{Y} = b_1 x + b_0$ $\hat{Y} = 0.825 * 93 + (-0.125)$ $\hat{Y} = 76.6$

Campus Resources

- Professors and Teaching Assistants

- Academic Learning Centre Tutors

- Help Centres

  [Math (412 Machray Hall)](#)
  [Computer Science (E2-422A Engineering)](#)
  [Statistics (311 Machray Hall)](#)
  [Physics (114 Allen)](#)
  Chemistry (128 Parker)

- [Tutors on campus](#)

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Academic Learning Centre

We offer:

One to One tutoring

Workshops

Supplemental Instruction

[Website](#)

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Academic Learning Centre

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Email: academic_learning@umanitoba.ca

Fort Garry Phone: 204-480-1481

Fort Garry Reception Desk: 205 Tier (U1 First Year Centre)

Bannatyne Phone: 204-272-3190

Bannatyne Reception Desk: S211 Medical Services Building

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