

Push Tasks — Answers



1. Describe the trend, association, and strength of the main cluster, ignoring the outlier.



Solution

Linear, positive, strong – points lie on a line

2. Find the outlier's coordinates. By how much do its actual sales exceed the trend's prediction?



Solution

(3, 85), predicted 30.
Exceeds by 55

3. “Every extra \$1000 spent always adds exactly \$10,000 in sales.” Give two reasons this is wrong.



Solution

(1) Only 5 points; (2) the outlier already breaks it

4. Would you trust this line's prediction for a \$30,000 spend? Justify, referring to the data range shown.



Solution

No – \$30k is outside the \$10k data range

Push Tasks — Answers



5. A student swaps the axes, then calls sleep the response variable. Explain why this is wrong.

Solution

Sleep predicts score, so sleep is explanatory (x-axis) and score is response (y-axis)

7. Class B's points scatter more than Class A's. What does this mean for trusting a Class B prediction?

Solution

More scatter = weaker fit –
Class B predictions are less reliable

6. Calculate the % increase in Class A's predicted score from 4 to 8 hours of sleep.



Solution

Scores: $50 \rightarrow 82 (+32)$.
% increase
 $= 32/50 = 64\%$

8. Predict Class A's score at 7.5 hours sleep. Is this interpolation or extrapolation?



Solution

Score $= 8(7.5) + 18 = 78$.
Interpolation (within 4-8 hrs)