

Quiz 3 (Individual) for Statistics 113
Statistics and Society–Fall 1999
Material Covered: Chapters 10 of notes and text
For: 6th October

This is a 15 minute quiz, worth 6% and marked out of 6 points. The total possible points awarded for each question is given in square brackets at the beginning of each question. Anything that can fit on one side of an $8\frac{1}{2}$ by 11 inch piece of paper may be used as a reference during this quiz. A calculator and appropriate statistical tables may also be used. No other aids are permitted.

Name (please print): _____
last first

For different American airlines in 1993, the relationship between % on-time arrivals (x) and % on-time departures (y) can be summarized as follows:

average % on-time arrivals ≈ 81.4 , SD ≈ 4.2
average % on-time departures ≈ 86.9 SD ≈ 2.9 $r \approx 0.79$

1. [1] The point of averages is (circle one) **(81.4, 86.9)** / **(86.9, 81.4)** / **(2.9, 4.2)** / **(0.79, 2.9)** / **(4.2, 81.4)** hours.
2. [1] The slope of the regression line
is _____.
3. [1] For an airline with a % on-time arrival of 78.2%, we predict a % on-time departure of (circle closest one) **83.4%** / **83.9%** / **84.3%** / **84.9%** / **85.2%**.
4. [1] If we observe a % on-time departure of 84.9% for an % on-time arrival of 78.2%, the residual is (circle closest one) **1.5%** / **1%** / **0.6%** / **0%** / **-0.3%**.
5. [1] For an airline with a % on-time arrival at the 70th percentile, we predict a % on-time departure at the (circle closest one) **58th** / **62nd** / **65th** / **67th** / **69th** percentile.
6. [1] The regression effect says in this case that although the predicted % on-time departures is high for high % on-time arrivals, this prediction *appears* to (circle one) **underestimate** / **not effect the estimate of** / **overestimate** the % on-time departures.

1. [1] **(81.4, 86.9)**
2. [1] $0.55 \left(\frac{(0.79)(2.9)}{4.2} \right) \approx 0.55$
3. [1] **85.2%**; $78.2 - 81.4 = -3.2$, $\frac{-3.2}{4.2} \approx -0.76$, $-0.76(0.79) \approx -0.60$,
 $-0.60(2.9) \approx -1.75$, $86.9 - 1.75 \approx 85.2$
4. [1] **-0.3%**; $84.9 - 85.2 = -0.3$
5. [1] **58th**; 70th is 20% in normal tables, which is 0.25, $0.25(0.79) = 0.1975$, which
is 15.85% in tables or $15.85\% + \frac{100-15.85}{2} \approx 57.9\%$
6. [1] **underestimate**