



#7.  $\rho[2x+4, 9y-2] = \rho[x, y]$   
 $\rho[-2x, 4y] = -\rho[x, y]$   
 $\rho[-2x, -4y] = \rho[x, y]$

#8. Pop Slope  $\beta_1 = \rho \frac{\sigma_y}{\sigma_x}$  (Pop SLOPE)  
 NATURAL ESTIMATOR (RULE)  $b_1 = \rho \frac{s_y}{s_x} = \rho \frac{\frac{\sigma_y}{\sqrt{n}}}{\frac{\sigma_x}{\sqrt{n}}}$   
 $\therefore$  (b)  $\rho[x, y] \frac{s_y}{s_x}$  SAMPLE SLOPE

#9. (calc. 1.8) RESTO INVOLVES  $\sqrt{n-2}$  DENOM.

#10.  $SE(b_1) = \frac{1}{\sqrt{n-1}} \frac{s_e}{s_x} = \sqrt{\frac{1-r^2}{n-2}} \frac{b_1}{r}$

#11. DF  $n-2 = 4-2 = 2$

#12. ans  $t = 4.303$

DF	
2	4.303
CONF 95%	1.96
	$\infty$
	DF

#13. 95% CI FOR  $\beta_1$   
 $b_1 \pm t SE(b_1)$

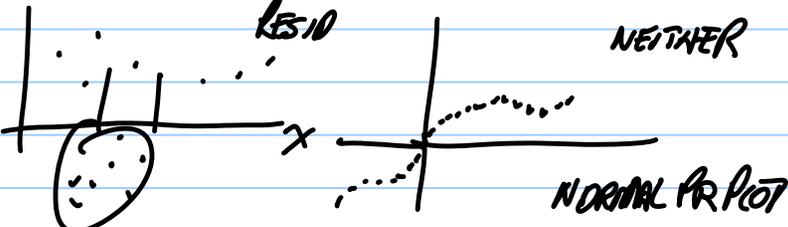
ESTD      STDError OF EST = ESTD OF SD OF  $b_1$

PROVIDED NORMAL 2D BPN (OR  $n > 30$ , VICE V)

#14  $\hat{y} \sim 7.8$   $y = 6$  PREDICTED  $\hat{y}$   
 $\begin{matrix} \circ \\ \bullet \end{matrix}$   
 $\begin{matrix} 4 \\ x \end{matrix}$   
 RESIDUAL =  $y - \hat{y} = 6 - 7.8$   
 NEG THIS CASE  $\sim -2$

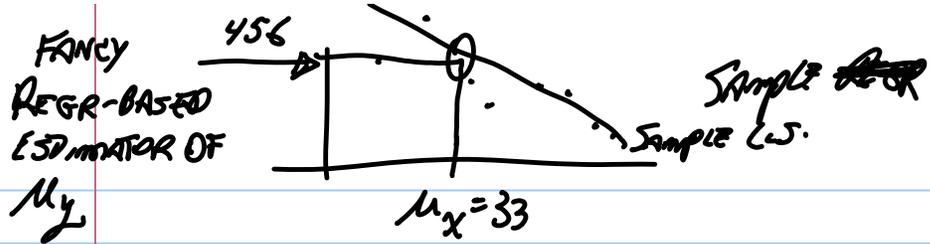
#15  $b_1$  BY EYE  $\downarrow$   
 $\begin{matrix} 8 \\ 4 \end{matrix}$  } 4 SLOPE  
 $\begin{matrix} x \\ 1 \end{matrix}$  (4) 5  $\approx \frac{8-4}{5-1} = 1$

#16. RESID  $\sim -2$  RESID<sup>2</sup>  $\sim 4$  (ROUGH)

#17.  NEITHER  
 NORMAL PR PLOT

#18. FRACTION OF  $\sigma_y^2$  EXPLAINED BY REGR  
 ON  $x$  IS  $r^2$ .

#19.  $\mu_x = 33$  KNOWN  $\rightarrow$  REGR BASED EST 15  
 OF  $\mu_y$



SAMPLE L.S. LINE  $\approx$  POP L.S. LINE  
 AND  $(\mu_x, \mu_y)$  IS ON POP L.S. LINE

