

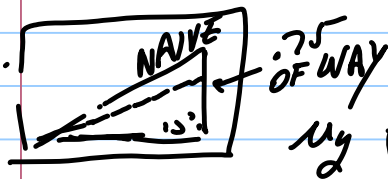
STT 200 4-26-10

Note Title

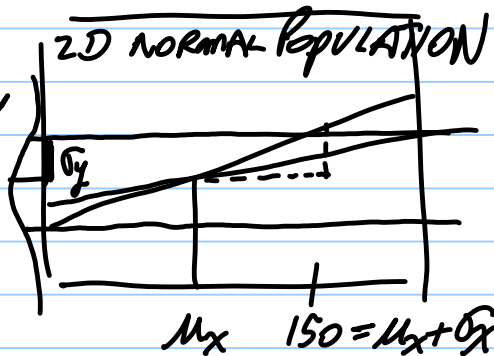
4/26/2010

1. THE QUIZ LASTS UNTIL 3:40.
2. AFTERWARDS I WILL PASS OUT A KEY AND DISCUSS SOME SOLUTIONS.

ON KEY #21-23.

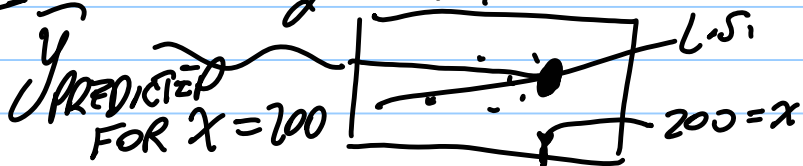


$$\rho = \frac{\text{RISE OF L.S.}}{\text{RISE OF NAIVE}}$$



22. $\mu_x + \sigma_x = 150$ SEE $\sigma_x = 100$ (PLOT)
SEE $\mu_x = 100$

23. L.S. PREDICTED y FOR x=200



24. MEAN OF ALL y WITH $x=200$
 IF (AS WE'D ASSUMED) THE POP IS 2D
 NORMAL THEN ANS: \hat{y} FOR $x=200$



25. SD OF ALL y WITH $x=200$

IF POP 2D NORMAL THEN

ANS (e)

$$20 \sqrt{1-\rho^2}$$

σ_y

SD y

1520

$\sqrt{1-\rho^2} \sigma_y$
 SAME FOR
 ALL x

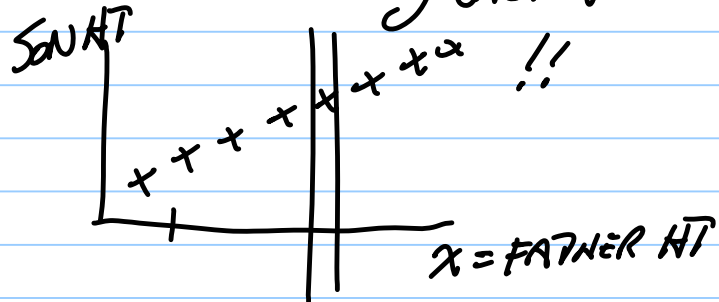
$x=200$

ASIDE ρ^2 IS THE FRACTION OF
 σ_y^2 EXPLAINED BY REGR ON x .

$$\rho^2 \sigma_y^2 \quad (1-\rho^2) \sigma_y^2$$

#26-32. (a) TRUE (b) FALSE

#26. YES (TRUE) PLOT VERT STRIP AVGS OF y
FOR EACH x GET \sim STRAIGHT LINE
IN 2D NORMAL CASE of GALTON



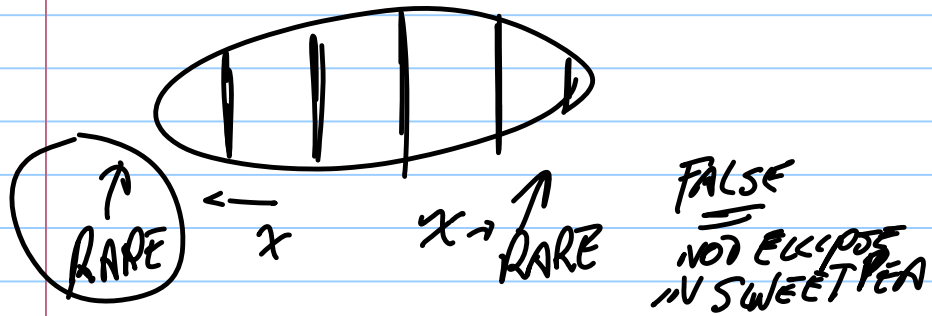
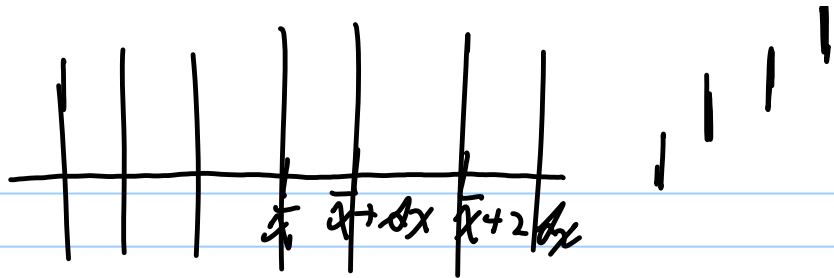
27. $n=2$ (x, y) POINTS t -BASED CI
FOR POP SLOPE β_1 (2D NORMAL)
CASE

SAM
SLOPE $\rightarrow b_1 \pm t_{DF}, \text{CONF } SE(b_1)$

$DF = n - 2 = 2 - 2 = 0$
FALSE NEED $n > 2$.

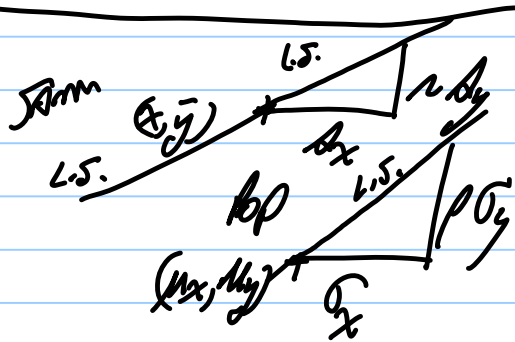
28. GALTON (SWEET PEAS) ELLIPSE??

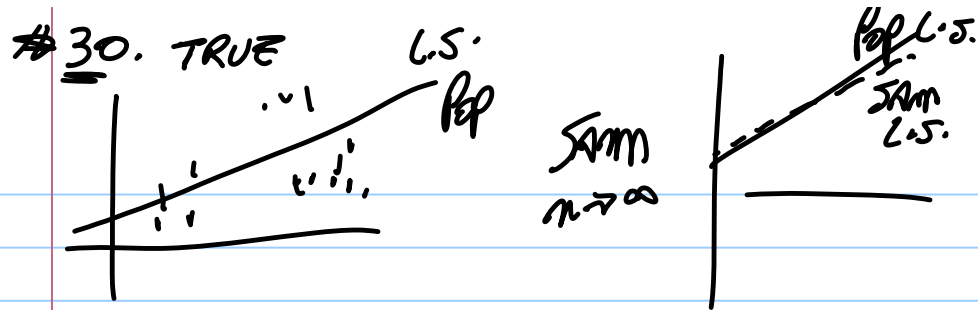
NO



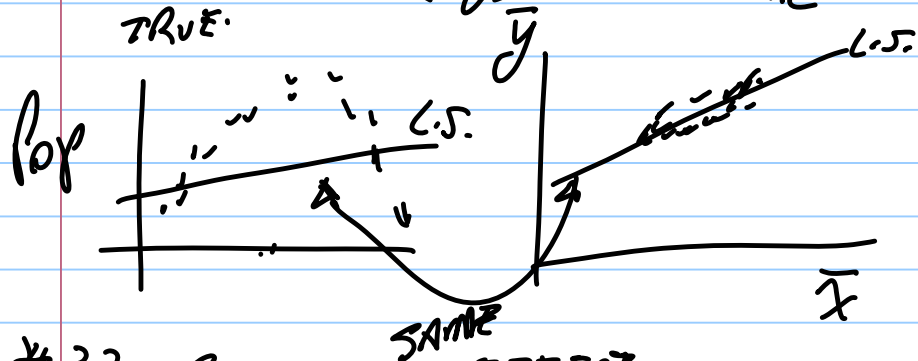
29. LS \equiv REGR?
NO

BUT IN CASE POP 2D
NORMAL TAE L.S.
IS SAME AS REGR





31. JOINT DIST OF $(\bar{x}, \bar{y}) \approx 2D$ NORMAL TRUE.



32. REGRESSION EFFECT.
 FATHERS $2\sigma_x$ ABOVE μ_x (WEIGHT)
 SONS AVG ONLY $\rho(2)$ ABOVE μ_y .

eg NOTED IN A7A
 FATHERS $2\sigma_x$ ABOVE \bar{x}
 AVG ONLY $(2/2)\sigma_y = \bar{y}$.