

(b)
$$Y = 1.42 + (1.07)X + (0.55)X^2$$

(c)
$$X = 1.42 - (1.07)Y + (0.55)Y^2$$

(d)None of these.

Example: Fit an exponential curve of the form $Y = ab^{X}$ to the following data:

X:	1	2	3	4	5	6	7	8
Y:	1.0	1.2	1.8	2.5	3.6	4.7	6.6	9.1

\sim	\mathcal{L}
l=0	ab/`

				1
X	Y	$U = \log Y$	XU	X 2
	1.()	0.0000	0.0000	1
2	1.2	0.0792	0.1584	4
3	1.8	0.2553	0.7659	9
4	2.5	0.3979	1.5916	16
- 5	3.6	0.8563	2.7815	25
- 6	4.7	6721	4.0326	36
7	6.6	0.8195	5.7365	49
_ 8	9.1	9590	7-6720	64
36	30-5	3.7393	22.7385	204
				

$-\log Y = \log(ab^X)$
- logo + logo
= 1094 + 1209 5
= loga + x(logb)
(
Y = A + BX

(9.11a) gives the normal equations as

$$3.7393 = 8A + 36B$$

 $22.7385 = 36A + 204B$

Solving, we get

$$B = 0.1408$$
 and $A = 0.1662 = 1.8338$

$$B = 0.1408$$
 and $A = -0.1662 = \overline{1.8338}$
 $\therefore b = \text{Antilog } B = 1.383$ and $a = \text{Antilog } A = 0.6821$

Hence the equation of the required curve is

$$Y = 0.6821 (1.38)^{x}$$

S(XiUi) = S(AXi + BXi)

$$A = -0.1662$$
 $A = k$
 $B = 0.1408$ $a = 10$

If
$$5 = 125$$
 $\log 125 = 3$. $a = 10$

$$a = e^{0.1662}$$

Angle Between Two Lines of Regression

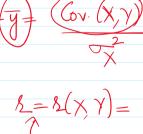
Poll Que: The angle between two Lines of Regression is given by:

(a)
$$\tan^{-1} \left[\left| \frac{1-r^2}{r} \right| \left(\frac{\sigma_X \sigma_Y}{\sigma_X^2 + \sigma_Y^2} \right) \right]$$

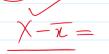
(b)
$$\tan^{-1} \left[\left| \frac{1-r^2}{r} \right| \left(\frac{\sigma_X^2 \sigma_Y^2}{\sigma_Y^2 + \sigma_Y^2} \right) \right]$$

(c)
$$\tan^{-1} \left[\left| \frac{1-r^2}{r} \right| \left(\frac{\sigma_X \sigma_Y}{\sigma_X + \sigma_Y} \right) \right]$$

(d)None of these.



$$(x + \overline{x}) = (x + \overline{x})$$

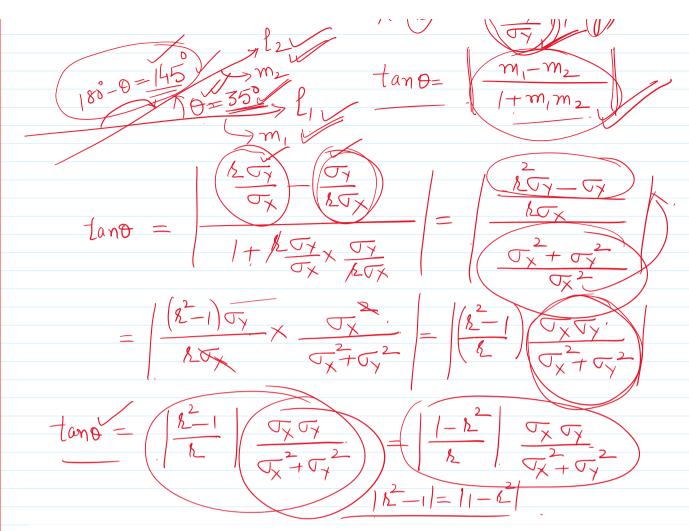






$$\overline{\chi}-\overline{\chi}=$$





Poll Que: If the two variables X and Y are uncorrelated then the lines of regression are:

(a) parallel

(d)None of these

Poll Que: If the two variables X and Y are perfectly correlated ($r = \pm 1$) then the lines of regression are:

(a) parallel

 $\frac{cov.(x,y)}{cov} = \frac{cov.(x,y)}{cov} = \frac{cov.(x,y)}{cov.(x,y)} = \frac{cov.(x,y)}{cov.$

