2.

X	Y
1	10
2	15
8	35
13	44

① FIND $\bar{X}$

$$\bar{X} = \frac{1+2+8+13}{4}$$

$$= \frac{24}{4}$$

$$\bar{X} = 6$$

② FIND $\bar{y}$

$$\bar{y} = \frac{10+15+35+44}{4}$$

$$= \frac{104}{4}$$

$$\bar{y} = 26$$

③ FIND S_X

X	$X-\bar{X}$	$(X-\bar{X})^2$
1	$1-6=-5$	$(-5)^2=25$
2	$2-6=-4$	$(-4)^2=16$
8	$8-6=2$	$2^2=4$
13	$13-6=7$	$7^2=49$

$$\sum(x-\bar{x})^2 = 94$$

$$S_X = \sqrt{\frac{\sum(x-\bar{x})^2}{n-1}}$$

$$= \sqrt{\frac{94}{4-1}} = \sqrt{\frac{94}{3}}$$

$$S_X = 5.59762$$

$$\bar{X} = 6$$

④ FIND S_y

y	$y-\bar{y}$	$(y-\bar{y})^2$
10	$10-26=-16$	$(-16)^2=256$
15	$15-26=-11$	$(-11)^2=121$
35	$35-26=9$	$9^2=81$
44	$44-26=18$	$18^2=324$

$$\sum(y-\bar{y})^2 = 782$$

$$S_y = \sqrt{\frac{\sum(y-\bar{y})^2}{n-1}}$$

$$= \sqrt{\frac{782}{4-1}} = \sqrt{\frac{782}{3}}$$

$$S_y = 16.14517$$

$$\bar{y} = 26$$

⑤ BUILD TABLE

X	Y	$\left(\frac{X-\bar{X}}{S_X}\right)\left(\frac{Y-\bar{Y}}{S_Y}\right)$
1	10	$\left(\frac{1-6}{5.59762}\right)\left(\frac{10-26}{16.14517}\right) = \left(\frac{-5}{5.59762}\right)\left(\frac{-16}{16.14517}\right) = .88521$
2	15	$\left(\frac{2-6}{5.59762}\right)\left(\frac{15-26}{16.14517}\right) = \left(\frac{-4}{5.59762}\right)\left(\frac{-11}{16.14517}\right) = .48686$
8	35	$\left(\frac{8-6}{5.59762}\right)\left(\frac{35-26}{16.14517}\right) = \left(\frac{2}{5.59762}\right)\left(\frac{9}{16.14517}\right) = .19917$
13	44	$\left(\frac{13-6}{5.59762}\right)\left(\frac{44-26}{16.14517}\right) = \left(\frac{7}{5.59762}\right)\left(\frac{18}{16.14517}\right) = 1.39429$

$$\sum = 2.96544$$

$$r = \frac{\sum\left(\frac{X-\bar{X}}{S_X}\right)\left(\frac{Y-\bar{Y}}{S_Y}\right)}{n-1} = \frac{2.96544}{4-1}$$

$$= .9885$$