

CRITERION	TEST	
	YES	NO
YES	A 5	C 14
NO	B 1	D 20

①  $P_{cc} = \frac{A+D}{A+B+C+D} = \frac{5+20}{40} = 0.63$

②  $S = \frac{A}{A+C} = \frac{5}{5+14} = \frac{5}{19} = 0.26$

$\bar{X} = 8$   
 $S_x = 2$   
 $X = 7$

③  $E = 5 + 2 \cdot z_n = 5 + 2 \cdot (-0.5) = 4$

$z = \frac{X - \bar{X}}{S_x} = \frac{7 - 8}{2} = \frac{-1}{2} = -0.5$

④  $T = 50 + 10 \cdot z_x = 50 + 10 \cdot (-0.5) = 45$

⑤  $D = 50 + 20 \cdot z_x = 50 + 20 \cdot (-0.5) = 40$

⑥  $y = a + b \cdot z_x$   
 $y = 20 + 3 \cdot (-0.5) = 18.5$

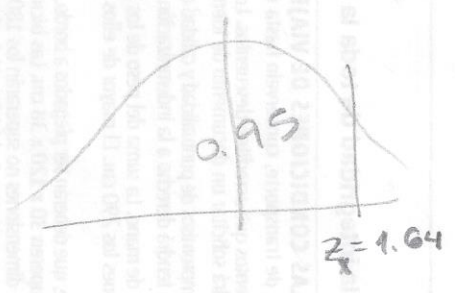
⑦  $z_{x=0.5} \rightarrow p = 0.3081$  (obtained from z scores table)  
 $p = 31$

⑧  $r_{xy} = 0.6$   
 $z_x = 1$   
 $E = 5 + 2 \cdot z_n = 5 + 2 \cdot 0.6 = 6.2 \approx 6$   
 $z_y = r_{xy} \cdot z_x = 0.6 \cdot 1 = 0.6$

⑨  $x = 9$   
 $\bar{X} = 5$   
 $S_x^2 = 4 \rightarrow S_x = \sqrt{4} = 2$   
 $X^* = Y = \left( \frac{S_y}{S_x} \right) (X - \bar{X}) + \bar{Y} = \left( \frac{3}{2} \right) (9 - 5) + 10 = 1.5 \cdot 4 + 10 = 6 + 10 = 16$

$\bar{Y} = 10$   
 $S_y^2 = 9 \rightarrow S_y = \sqrt{9} = 3$

⑩  $N = 500$   
 $\bar{X} = 18$   
 $S_x = 6$



$z_x = \frac{x - \bar{X}}{S_x} \rightarrow 1.64 = \frac{x - 18}{6}$   
 $1.64 \cdot 6 = x - 18$   
 $9.84 = x - 18$   
 $27.84 = x$