Q4. $V(x,y) = ax^2 + b$

$10 = ax_1^2 + b = 4a + b$

$20 = bx_2^2 + b = 9a + b$

$$\begin{bmatrix} x_1^2 & 1 \\ x_2^2 & 1 \end{bmatrix} \begin{bmatrix} a \\ b \end{bmatrix} = \begin{bmatrix} 10 \\ 20 \end{bmatrix}$$

$a = 2, \; b = 2$

$V(4,4) = 2x^2 + 2$

$= 2 \cdot 16 + 2 = 34$

Q2.)

r	$P(r)$	$T(r) = 3F_R(r)$	z	$P(z)$	$G(z)$
0	1/2	1.5	0	0	0
1	0	1.5	1	0	0
2	0	1.5	2	1/2	1.5
3	1/2	3	3	1/2	3

For $r = 0$, $T(r) = 1.5$ and closest $G(z)$ id 1.5 which occurs at $z = 2$

$r = 3$, $T(r) = 3$, $G(z) = 3$ at $z = 3$

$r = 0$ mapped to $z = 2$

$r = 3$ " " $z = 3$

Q 3. $X = UT_1 = Y_2 T_2^{-1}$

$Y = XT_2$

$U = Y_2 T_2^{-1} T_1^{-1}$