Solution - Exam 1 ARUNACHALAM

1. $a(a+1)(a+2)x = (a-1)(a+1)$. Sol:- if $a \neq -1$ & $a \neq 0$ & $a \neq -2$.

if $a \neq -1$ $\quad a(a+2)x = (a-1)$. $\quad$ Then $x = \frac{(a-1)}{a(a+2)}$.

if $a \neq 0$ or $a \neq -2$ $\quad x = \frac{(a-1)}{a(a+2)}$.

if $a \neq -1$ & $a = 0$ or $a = -2$.
There is no Solution for X.

if $a = -1$.
Then X can be anything
$\neq \rightarrow$ unbounded.

2. $A\ x^2 + y^2 \rightarrow \min$

$x^2 + y^4 = 1$.

$y^2 \rightarrow$ always +ve.
So to minimize it $\rightarrow Y = 0$.
At least value x can take is $x = -1$.
So, the min $= -4$.

$-1 \leq X \leq 1$.
$-1 \leq Y \leq 1$.

Sol :- $\min = -1$, $X = -1$, $Y = 0$.

Answer: min = -4...
- Todd Fisher

3.

x_1	x_2	x_3	1	Problem3
1	0	1	2	$= x_4$
1	0	1	-1	$\rightarrow \min$.

Sol $\rightarrow$ The solution is optimal.
$b \geq 0$ & $c \geq 0$. The Solution is
$\min = -1$, $x_1 = x_2 = x_3 = 0$.
$x_4 = 2$.

4.

x_1	x_2	x_3	1	Problem4
-1	0	-1	-2	$= x_4$
1	0	-1	-1	$\rightarrow \min$.

Sol $\rightarrow$.
The Problem is infeasible because x_4 row is a bad row
$\min = \infty$.

5. Sol $\rightarrow$.
$a \Leftrightarrow d$.
$b \Rightarrow a, b, d, e$. (False $\Rightarrow$ anything)
$a, b, d, e \Rightarrow c$. (anything $\Rightarrow$ True).
$e \Rightarrow a, d$.