Since D is diagonal with descending singular values then $\|Dy\|$ is minimized for $y = [0, .. , 1]^T$

Then $x = Vy$ is the last column of matrix V.

Alternate proof based on eigen value

The solution to $\|Ax\|^2 = [Ax]^T Ax = x^T A^T A x$ s.t $x^T x = 1$ is the eigen vector correspon[ding] to the least eigen value of $A^T A$

From Lagrange Multiplier

$L(x) = x^T A^T A x - \lambda(x^T x - 1)$

Take der wrt x and set it to zero give

$$A^T A x - \lambda x = 0.$$

Or λ is an eigenvalue of $A^T A x$ and $x = e_\lambda$ is the eigenvector corresponding to $A^T A$.

then ...

the ...

and ...

correspon...

of $A^T A$.

1) Why is ...

2) What a...

problem...

3). Given ...

~~4). Problem~~

4) Ass 1. t...

5). What ...

conver...

6) What ...

the s...

R ?.

7). Show...