

1. Find a quadratic function such that $\|f\|_u = 1$ and $\|D(f)\|_1 = 4$.

2. Let:

$$A = \begin{bmatrix} 1 & 0 \\ 1 & 1 \\ 0 & 1 \end{bmatrix}.$$

Find:

(a) $\|A\|_1$

(b) $\|A\|_u$

(c) $\|A\|_2$