

Math 302 – 02 Quiz 1

(A)

Name:.....Serial#:.....

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**Q.1:** Let  $S$  consists of all vectors of the form  $\{x, y, x + y, x - y\}$  in  $R^4$ . Determine whether  $S$  is a subspace of  $R^4$ .

**Q.2:** Prove the identity  $\|\vec{F} + \vec{G}\|^2 + \|\vec{F} - \vec{G}\|^2 = 2(\|\vec{F}\|^2 + \|\vec{G}\|^2)$ .

**Q.3:** Determine whether the vectors  $3i + 6j - k$ ,  $8i + 2j - 4k$ , and  $i - j + k$  are linearly independent or dependent.