

Section 101 of Math 54, Summer 2007

Sample Quiz 4

15 minutes

SID: _____ Last Name: _____ First Name: _____

NOTE: DO NOT use textbooks, notes, calculators and computers. Please circle your final answer if possible.

1. (*5 points*) Let $V = \{(x_1, x_2, x_3) | x_1, x_2, x_3 \in \mathbb{R}\}$ and the addition and scalar multiplication are defined as follows.

$$(x_1, x_2, x_3) + (y_1, y_2, y_3) = (x_1 + y_1, x_2 + y_2, x_3 + y_3),$$

$$r(x_1, x_2, x_3) = (x_1, x_2, x_3).$$

It turns out that V is not a vector space because one of the 8 axioms of the general vector spaces fail. Please find that axiom and show it is not true for V .

Solution.

2. (5 points) Prove

$$(-1)\mathbf{u} = -\mathbf{u}.$$

by using only the axioms of the vector spaces and the property $0\mathbf{u} = \mathbf{0}$

Solution.

Grade: -----