Using Linear Algebra Definitions to Find Your Team – Class Handout

1. Explain why you are a team (that is, explain why the set(s) of vectors satisfy the property of the team).

2. Determine whether the following statements are true or false. Write out *true* or *false*. Justify your answers clearly.

   (a) The vectors $(1, 2), (-1, 3), (5, 2)$ are linearly independent in $\mathbb{R}^2$.

   (b) The vectors $(1, 0, 0), (0, 2, 0), (1, 2, 0)$ span $\mathbb{R}^3$.

   (c) A basis for a vector space V can include the zero vector.

   (d) There exists a set of vectors in $\mathbb{R}^3$ that is linearly independent but does not span $\mathbb{R}^3$.

   (e) There exists a vector space containing a set of $12345678910111213141516171819$ linearly independent vectors.

   (f) There exists a vector space containing exactly $12345678910111213141516171819$ vectors.