Math 430 Fall 2016 Homework #4

Due Otc. 4, Tue in class

1. Textbook, Section 4.2, page 178: 2, 11, 12;
2. Textbook, Section 4.3, page 190: 5, 7;
3. Let $S = \{v_1, \ldots, v_p\}$ be a finite set in $\mathbb{R}^n$, and A be an $n \times n$ invertible matrix. Show that S is linearly independent if and only if $\{Av_1, \ldots, Av_p\}$ is linearly independent.
4. Let $\{u, v, w\}$ be a linearly independent set in the vector space V. Determine whether or not each of the following sets is linearly independent and justify your answers.
   (1) $\{2u, -v, 3w\}$;
   (2) $\{u, v, w, u + v - 2w\}$;
   (3) $\{u, u - v, u - v - w\}$.