

Math 3280 Worksheet 18: Linear dependence of vectors

Group members (2 to 4): \_\_\_\_\_

- (1) (a) Are the vectors  $v_1 = \begin{pmatrix} 1 \\ -1 \\ 0 \\ 2 \end{pmatrix}$ ,  $v_2 = \begin{pmatrix} 2 \\ 0 \\ -2 \\ 1 \end{pmatrix}$ , and  $v_3 = \begin{pmatrix} 0 \\ 1 \\ -1 \\ -\frac{3}{2} \end{pmatrix}$  linearly independent or dependent?
- (b) If they are linearly dependent, find constants  $c_1, c_2, c_3$ , not all zero, such that  $c_1v_1 + c_2v_2 + c_3v_3 = 0$ .

- (2) Find a basis for the span of  $\{v_1, v_2, v_3\}$ , and determine the dimension of their span.