

Week 6 Linear Algebra worksheet  
MATH1014

- (1) Let  $\mathcal{B} = \{1 + t, 2 - t\}$  and  $\mathcal{C} = \{1 - t, t\}$  be two bases for  $\mathbb{P}_2$ .
  - (a) Express  $2t + 2$  in  $\mathcal{B}$  and  $\mathcal{C}$  coordinates.
  - (b) Is it easier to express the  $\mathcal{B}$  basis vectors in  $\mathcal{C}$  coordinates, or the  $\mathcal{C}$  basis vectors in  $\mathcal{B}$ ? If you want to find the change of coordinate matrices, why is it useful to answer this question before you begin computing anything?
  - (c) Find the change of coordinate matrices from  $\mathcal{B}$  to  $\mathcal{C}$  coordinates and from  $\mathcal{C}$  basis vectors in  $\mathcal{B}$  coordinates.