Subfiles package example

Overleaf

1 Introduction

Chapter 1

1.1 a

1.2 a

1.3 b

1.4 c

1.5 d

1.6 e

1.7 Find a formula for $\begin{bmatrix} 1 & 1 & 1 \\ & 1 & 1 \\ & & 1 \end{bmatrix}^n$, and prove it by induction.

Discussion. Call this matrix A. Consider the product when we multiply A on the right by itself. A's first column is $\begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$ which means the first column of the product will be the first column of A. The second column of the product will be the sum $1\times$(column 1) + $1\times$ (column 2), i.e. the sum of the first two columns. Likewise the 3rd column of the product will be the sum of the 3 columns of A. Therefore

$$AA = A^2 = \begin{bmatrix} 1 & 2 & 3 \\ 0 & 1 & 2 \\ 0 & 0 & 1 \end{bmatrix}$$

The action of multiplying any matrix B by A on the right will yield a product whose first column is the first column of B,

$$A\mathbf{c} = \begin{bmatrix} | & | & & | \\ \mathbf{a}_1 & \mathbf{a}_2 & \dots & \mathbf{a}_n \\ | & | & & | \end{bmatrix} \begin{bmatrix} c_1 \\ \vdots \\ c_n \end{bmatrix} = 0$$

Hello, here is some text without a meaning.
what if i kept typing?
and if i typed some more?