# Pima2024

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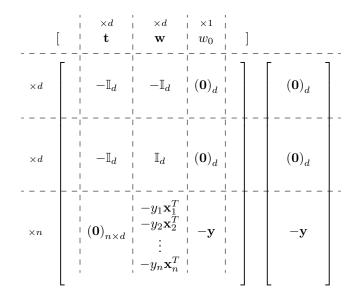
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### 1 Problem Description

#### 1.1 Problem 1

Render the matrix below:

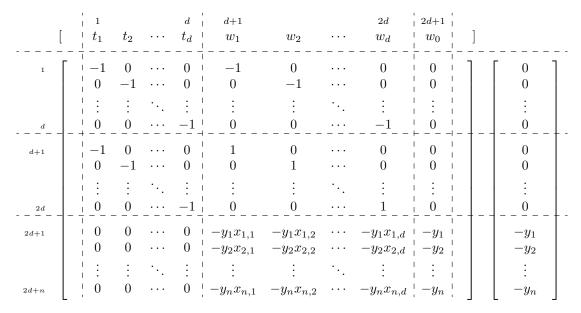


#### Hints:

- Use \array or \tabular instead of normal matrices commands for easy aligning.
- Use \scriptstyle for small text in math mode. Can be used for  $\times d$ ,  $\times n$  and  $\times 1$ .

#### 1.2 Problem 2

Render the matrix below:



#### 1.3 Problem 3

Try to scale the matrix in Problem 2 to 75% of the text width.

[	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$t_2$		$t_d$	$d+1$ $w_1$	$w_2$		$\frac{2d}{w_d}$	$w_0$	]		
1	$\begin{bmatrix} -1 \\ 0 \end{bmatrix}$	$0 \\ -1$		0	$\begin{bmatrix} -1 \\ 0 \end{bmatrix}$	$0 \\ -1$		0	0 0		$\begin{bmatrix} & 0 \\ & 0 \end{bmatrix}$	
d	; ; 0 -+	: _ 0_	··.	: 1	: : : 0	: 0	··.	: -1			: 0	
d+1	$\begin{bmatrix} 1 \\ 1 \end{bmatrix} = 0$	$0 \\ -1$		0		0 1		0	0 0		0 0	
<sup>2d</sup>		: 0_	··. _· <u>··</u> -	: 1_	: - 0	: 0	··.	: 1	0		: 	
2d+1	0 0	0		0	$-y_1x_{1,1}$ $-y_2x_{2,1}$	$-y_1x_{1,2} - y_2x_{2,2}$		$-y_1 x_{1,d} \\ -y_2 x_{2,d}$			$-y_1 \\ -y_2$	
2d+n		; 0	··.	; 0	$-y_n x_{n,1}$	$\vdots \\ -y_n x_{n,2}$	··.	$\vdots \\ -y_n x_{n,d}$	$-y_n$		$\begin{bmatrix} \vdots \\ -y_n \end{bmatrix}$	