Title

Notes (DM549)

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IMADA

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Task Design

$Set\ A = \emptyset$
$A \mapsto B$
α
$\mathbb{RCIN}$
|

$$\begin{bmatrix} 1 & 1 & 1 & = & 6 \\ 2 & 4 & 1 & = & 5 \\ 0 & -1 & 0 & = & 1 \end{bmatrix} \xrightarrow{\text{r2 = R2 - 2R1}} \begin{bmatrix} 1 & 1 & 1 & = & 6 \\ 0 & 2 & -1 & = & 5-12 \\ 0 & -1 & 0 & = & 1 \end{bmatrix} \xrightarrow[\text{Beloe}]{\text{Above}} \begin{bmatrix} 1 & 1 & 1 & = & 6 \\ 0 & 2 & -1 & = & -7 \\ 0 & 0 & 1/2 & = & -5/2 \end{bmatrix} \tag{1}$$

$$\begin{cases} 2x_2 - 5 = 7 \\ 2x_1 + 4x_2 + x_3 = 3 \\ 1/2x_3 = -5/2 = x_3 = 5 \end{cases} \tag{2}$$

test

Lecture notes

Feb

ex1 - page 1

a)
b)
c)
d)
e)
f)
g)
h)
i
j)
k)

ex1 - page 2

ex2

Vectors

$$A = \begin{bmatrix} 1 & 3 & 5 \\ -1 & 1 & 0 \end{bmatrix} \quad B = \begin{bmatrix} 1 & 0 & 1 \\ 2 & 1 & 1 \\ 1 & 1 & -1 \end{bmatrix}$$

$$C = \begin{bmatrix} 1 & 1 \\ 3 & 2 \\ -1 & 4 \end{bmatrix} \qquad d = \begin{bmatrix} 2 \\ -1 \\ 1 \end{bmatrix}$$

a)
Ad
b)
AB+C
c)
A+Ct
d)

$$CtC = \begin{bmatrix} 1*1+3*3+(-1)*1 & 1*1+3*2+(-1)*4 \\ 2 & -4 \end{bmatrix} = \begin{bmatrix} 9 & 3 \\ 2 & -4 \end{bmatrix}$$

e)
Not done

$$BC = \begin{bmatrix} 1*1+3*3+(-1)*1 & 1*1+3*2+(-1)*4 \\ 2 & -4 \end{bmatrix} =$$

f)
dtB
g)
Cd
h)

$$dtd = \begin{bmatrix} 2*2+1+1 \end{bmatrix} = 6$$

i)

$$ddt = \begin{bmatrix} 2*2 & -2 & 2 \\ 2*(-1) & (-1)*(-1) & -1 \\ 2 & -1 & 1 \end{bmatrix} = \begin{bmatrix} 4 & -2 & 2 \\ (-2) & 1 & -1 \\ 2 & -1 & 1 \end{bmatrix}$$

j)
A/C
k)
C/A

Sheet4

exercise 1

I = indentity matrix.

$vec\dot{v}ec = m + m - 1 = 2m - 1$
$Y = ABx =$
$Matrix\dot{v}ec = M(2m-1) = 2m^2$ $Y = (AB)x = m^3 + 2m^2$
$Matrix\dot{M}atrix = mp(2m - 1 = 2m^3$ $Y = A(Bx) = 2m^2 + 2m^2$
uvx are vectors $A = I + uv^t = m^2 + m^2 + 2m^2 = nm^2$
$y = Ax =$
$w = I + (v^t x)u = 2m - 1 + m + m = nm + 1$
$y = x + w =$

exercise 2

Planespeed1 = 1365 / 3 = 445 planespeed2 = 870 / 2 = 435
Speeddif = 10 so wind is = 5 mph

exercise 3

1)
$8 * 0.32 = x1/2 + y1/10$ 2)
$8 = x + y$
3)
$x = 8 - y$
4)
$8 * 0.32 = (8 - y) + 1/2 + y * 1/10$

exercise 4

$$\begin{cases} x_1 + x_2 + x_3 = 6 \\ 2x_1 + 4x_2 + x_3 = 3 \\ 2x_1 + 3x_2 + x_3 = ? \end{cases} \tag{3}$$

$$\begin{bmatrix} 1 & 1 & 1 & = & 6 \\ 2 & 4 & 1 & = & 5 \\ 2 & 3 & 1 & = & 6 \end{bmatrix} => \begin{bmatrix} 1 & 0 & 0 & = & 6 \\ 0 & 1 & 0 & = & 5 \\ 0 & 0 & 1 & = & 6 \end{bmatrix} \tag{4}$$

$$\begin{bmatrix} 1 & 1 & 1 & = & 6 \\ 2 & 4 & 1 & = & 5 \\ 0 & -1 & 0 & = & 1 \end{bmatrix} \xrightarrow{\text{r2 = R2 - 2R1}} \begin{bmatrix} 1 & 1 & 1 & = & 6 \\ 0 & 2 & -1 & = & 5-12 \\ 0 & -1 & 0 & = & 1 \end{bmatrix} \xrightarrow{\text{R3 = R3 + 1/2 R2}} \begin{bmatrix} 1 & 1 & 1 & = & 6 \\ 0 & 2 & -1 & = & -7 \\ 0 & 0 & 1/2 & = & -5/2 \end{bmatrix} \tag{5}$$

$$\begin{cases} 2x_2 - 5 = 7 \\ 2x_1 + 4x_2 + x_3 = 3 \\ 1/2x_3 = -5/2 = x_3 = 5 \end{cases} \tag{6}$$