

| August 2018 | | | | | September 2018 | | | | | October 2018 | | | | | | |
|-------------|---|----|----|----|----------------|---|----|----|----|--------------|---|---|----|----|----|----|
| M | 6 | 13 | 20 | 27 | M | 3 | 10 | 17 | 24 | M | 1 | 8 | 15 | 22 | 29 | |
| T | 7 | 14 | 21 | 28 | T | 4 | 11 | 18 | 25 | T | 2 | 9 | 16 | 23 | 30 | |
| W | 1 | 8 | 15 | 22 | 29 | W | 5 | 12 | 19 | 26 | W | 3 | 10 | 17 | 24 | 31 |
| T | 2 | 9 | 16 | 23 | 30 | T | 6 | 13 | 20 | 27 | T | 4 | 11 | 18 | 25 | |
| F | 3 | 10 | 17 | 24 | 31 | F | 7 | 14 | 21 | 28 | F | 5 | 12 | 19 | 26 | |
| S | 4 | 11 | 18 | 25 | S | 1 | 8 | 15 | 22 | 29 | S | 6 | 13 | 20 | 27 | |
| S | 5 | 12 | 19 | 26 | S | 2 | 9 | 16 | 23 | 30 | S | 7 | 14 | 21 | 28 | |

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July
WEEK 27

Chapter #9

189/176 Sunday 8

7.00 am

Exercise 9.1

Q1

8.00

Q2

$$= (i) \begin{bmatrix} 2 & 1 & 4 \\ 3 & -1 & 0 \end{bmatrix} + \begin{bmatrix} 6 & 3 & 0 \\ -2 & 1 & 0 \end{bmatrix}$$

9.00

10.00

$$= \begin{bmatrix} 2+6 & 1+3 & 4+0 \\ 3+(-2) & -1+1 & 0+0 \end{bmatrix}$$

11.00

Noon

$$= \begin{bmatrix} 8 & 4 & 4 \\ 1 & 0 & 0 \end{bmatrix} \underline{\underline{Ans}}$$

1.00

2.00

$$(ii) \begin{bmatrix} 1 & 3 & 5 & 6 \end{bmatrix} + \begin{bmatrix} 0 & -2 & 1 & 3 \end{bmatrix}$$

3.00

$$= \begin{bmatrix} 1+0 & 3+(-2) & 5+1 & 6+3 \end{bmatrix}$$

4.00

$$= \begin{bmatrix} 1 & 1 & 6 & 9 \end{bmatrix} \underline{\underline{Ans}}$$

5.00

(iii)

$$\begin{bmatrix} 4 \\ 3 \\ 1 \end{bmatrix} + \begin{bmatrix} 6 \\ 0 \\ -2 \end{bmatrix}$$

6.00

$$= \begin{bmatrix} 4+6 \\ 3+0 \\ 1+(-2) \end{bmatrix} = \begin{bmatrix} 10 \\ 3 \\ -1 \end{bmatrix} \underline{\underline{Ans}}$$

7.00

8.00 pm

(2)

| May 2018 | | | | | | | June 2018 | | | | | | | July 2018 | | | | | | |
|----------|----|----|----|----|----|----|-----------|----|----|----|----|----|----|-----------|----|----|----|----|---|---|
| M | T | W | T | F | S | S | M | T | W | T | F | S | S | M | T | W | T | F | S | S |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | | |
| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | | |
| 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 1 | 2 | | |
| 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | | |
| 29 | 30 | 31 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | | |

9 Monday 2018/07/23

7:00 am (iv) $\begin{bmatrix} 2 & 3 & 4 \\ -1 & 6 & 2 \\ 1 & 0 & 3 \end{bmatrix} + \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}$

8:00
9:00 = $\begin{bmatrix} 2 & 3 & 4 \\ -1 & 6 & 2 \\ 1 & 0 & 3 \end{bmatrix}$

10:00
11:00 (v) $2 \begin{bmatrix} 6 & 1 \\ 0 & -3 \\ -1 & 2 \end{bmatrix} - 3 \begin{bmatrix} 4 & 2 \\ 0 & 1 \\ -5 & -1 \end{bmatrix}$

Noon
1:00 = $\begin{bmatrix} 12 & 2 \\ 0 & -6 \\ -2 & 4 \end{bmatrix} - \begin{bmatrix} 12 & 6 \\ 0 & 3 \\ -15 & -3 \end{bmatrix}$

2:00
3:00 = $\begin{bmatrix} 12-12 & 2-6 \\ 0-0 & -6-3 \\ -2+15 & 4+3 \end{bmatrix}$

4:00
5:00 = $\begin{bmatrix} 0 & -4 \\ 0 & -9 \\ 13 & 7 \end{bmatrix}$ Ans

6:00
7:00
8:00 pm

| August 2018 | | | | | | | September 2018 | | | | | | | October 2018 | | | | | | |
|-------------|---|----|----|----|----|---|----------------|----|----|----|---|---|----|--------------|----|----|--|--|--|--|
| M | 6 | 13 | 20 | 27 | M | 3 | 10 | 17 | 24 | M | 1 | 8 | 15 | 22 | 29 | | | | | |
| T | 7 | 14 | 21 | 28 | T | 4 | 11 | 18 | 25 | T | 2 | 9 | 16 | 23 | 30 | | | | | |
| W | 1 | 8 | 15 | 22 | 29 | W | 5 | 12 | 19 | 26 | W | 3 | 10 | 17 | 24 | 31 | | | | |
| T | 2 | 9 | 16 | 23 | 30 | T | 6 | 13 | 20 | 27 | T | 4 | 11 | 18 | 25 | | | | | |
| F | 3 | 10 | 17 | 24 | 31 | F | 7 | 14 | 21 | 28 | F | 5 | 12 | 19 | 26 | | | | | |
| S | 4 | 11 | 18 | 25 | S | 1 | 8 | 15 | 22 | 29 | S | 6 | 13 | 20 | 27 | | | | | |
| S | 5 | 12 | 19 | 26 | S | 2 | 9 | 16 | 23 | 30 | S | 7 | 14 | 21 | 28 | | | | | |

(3)

July
WEEK 28

19/174 Tuesday 10

7.00 am Q3 $\begin{bmatrix} b_{11} - a_{11} & b_{12} - a_{12} \\ b_{21} - a_{21} & b_{22} - a_{22} \end{bmatrix}$ is the

8.00

9.00 solution of $X + A = B$

10.00 $A = \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}, B = \begin{bmatrix} b_{11} & b_{12} \\ b_{21} & b_{22} \end{bmatrix}$

11.00

Sol: $X + A = B$

noon

$X = B - A$

1.00

$= \begin{bmatrix} b_{11} & b_{12} \\ b_{21} & b_{22} \end{bmatrix} - \begin{bmatrix} a_{11} & a_{12} \\ a_{21} & a_{22} \end{bmatrix}$

2.00

3.00 $= \begin{bmatrix} b_{11} - a_{11} & b_{12} - a_{12} \\ b_{21} - a_{21} & b_{22} - a_{22} \end{bmatrix}$ Sol.

4.00

5.00 Q4 Solve:

$X + \begin{bmatrix} 3 & -1 \\ 2 & 2 \end{bmatrix} = \begin{bmatrix} 5 & 1 \\ -3 & 1 \end{bmatrix}$

6.00

7.00 $X = \begin{bmatrix} 5 & 1 \\ -3 & 1 \end{bmatrix} - \begin{bmatrix} 3 & -1 \\ 2 & 2 \end{bmatrix}$

8.00 pm

$= \begin{bmatrix} 5-3 & 1+1 \\ -3-2 & 1-2 \end{bmatrix} = \begin{bmatrix} 2 & 2 \\ -5 & -1 \end{bmatrix}$ Ans

July

WEEK 28

(4)

| May 2018 | | | | | | | June 2018 | | | | | | | July 2018 | | | | | | |
|----------|---|----|----|----|----|---|-----------|----|----|----|----|----|----|-----------|----|----|--|--|--|--|
| M | 7 | 14 | 21 | 28 | M | 4 | 11 | 18 | 25 | M | 30 | 2 | 9 | 16 | 23 | | | | | |
| T | 1 | 8 | 15 | 22 | 29 | T | 5 | 12 | 19 | 26 | T | 31 | 3 | 10 | 17 | 24 | | | | |
| W | 2 | 9 | 16 | 23 | 30 | W | 6 | 13 | 20 | 27 | W | 4 | 11 | 18 | 25 | | | | | |
| T | 3 | 10 | 17 | 24 | 31 | T | 7 | 14 | 21 | 28 | T | 5 | 12 | 19 | 26 | | | | | |
| F | 4 | 11 | 18 | 25 | F | 1 | 8 | 15 | 22 | 29 | F | 6 | 13 | 20 | 27 | | | | | |
| S | 5 | 12 | 19 | 26 | S | 2 | 9 | 16 | 23 | 30 | S | 7 | 14 | 21 | 28 | | | | | |
| S | 6 | 13 | 20 | 27 | S | 3 | 10 | 17 | 24 | S | 1 | 8 | 15 | 22 | 29 | | | | | |

11 Wednesday 19/7/13

7.00 am

$$(ii) \quad X + \begin{bmatrix} -1 & 0 \\ 0 & 2 \end{bmatrix} = \begin{bmatrix} 2 & 6 \\ 1 & 5 \end{bmatrix} + \begin{bmatrix} -4 & -8 \\ -2 & 0 \end{bmatrix}$$

8.00

9.00

$$= \begin{bmatrix} 2-4 & 6-8 \\ 1-2 & 5+0 \end{bmatrix}$$

10.00

$$= \begin{bmatrix} -2 & -2 \\ -1 & 5 \end{bmatrix}$$

11.00

Noon

$$X = \begin{bmatrix} -2 & -2 \\ -1 & 5 \end{bmatrix} - \begin{bmatrix} -1 & 0 \\ 0 & 2 \end{bmatrix}$$

1.00

$$= \begin{bmatrix} -2+1 & -2-0 \\ -1-0 & 5-2 \end{bmatrix}$$

2.00

$$= \begin{bmatrix} -1 & -2 \\ -1 & 3 \end{bmatrix} \quad \underline{\underline{\text{Ans}}}$$

3.00

4.00

$$(iii) \quad 3X + \begin{bmatrix} 1 & 0 & 2 \\ 2 & 1 & 3 \\ 4 & -1 & 5 \end{bmatrix} = \begin{bmatrix} -2 & 3 & 1 \\ -1 & -2 & 0 \\ 0 & 1 & 5 \end{bmatrix}$$

5.00

6.00

$$3X = \begin{bmatrix} -2 & 3 & 1 \\ -1 & -2 & 0 \\ 0 & 1 & 5 \end{bmatrix} - \begin{bmatrix} 1 & 0 & 2 \\ 2 & 1 & 3 \\ 4 & -1 & 5 \end{bmatrix}$$

7.00

8.00 pm

| August 2018 | | | | September 2018 | | | | October 2018 | | | | | | | | |
|-------------|---|----|----|----------------|----|---|----|--------------|----|----|---|---|----|----|----|----|
| M | 6 | 13 | 20 | 27 | M | 3 | 10 | 17 | 24 | M | 1 | 8 | 15 | 22 | 29 | |
| T | 7 | 14 | 21 | 28 | T | 4 | 11 | 18 | 25 | T | 2 | 9 | 16 | 23 | 30 | |
| W | 1 | 8 | 15 | 22 | 29 | W | 5 | 12 | 19 | 26 | W | 3 | 10 | 17 | 24 | 31 |
| T | 2 | 9 | 16 | 23 | 30 | T | 6 | 13 | 20 | 27 | T | 4 | 11 | 18 | 25 | |
| F | 3 | 10 | 17 | 24 | 31 | F | 7 | 14 | 21 | 28 | F | 5 | 12 | 19 | 26 | |
| S | 4 | 11 | 18 | 25 | S | 1 | 8 | 15 | 22 | 29 | S | 6 | 13 | 20 | 27 | |
| S | 5 | 12 | 19 | 26 | S | 2 | 9 | 16 | 23 | 30 | S | 7 | 14 | 21 | 28 | |

July
WEEK 28

(5)

Orangeman's Day (N Ireland-U.K.)

19/172 Thursday 12

7.00 am $3X = \begin{bmatrix} -2 & -1 & 3 & -0 & 1 & -2 \\ -1 & -2 & -2 & -1 & 0 & -3 \\ 0 & -4 & 1 & 1 & 5 & -5 \end{bmatrix}$

9.00 $3X = \begin{bmatrix} -3 & 3 & -1 \\ -3 & -3 & -3 \\ -4 & 2 & 0 \end{bmatrix}$

11.00 $X = \frac{1}{3} \begin{bmatrix} -3 & 3 & -1 \\ -3 & -3 & -3 \\ -4 & 2 & 0 \end{bmatrix}$

Noon $X = \begin{bmatrix} -1 & 1 & -1/3 \\ -1 & -1 & -1 \\ -4/3 & 2/3 & 0 \end{bmatrix}$ Ans

2.00 (iv) $X + 2I = \begin{bmatrix} 3 & -1 \\ 1 & 2 \end{bmatrix}$

4.00 $X = \begin{bmatrix} 3 & -1 \\ 1 & 2 \end{bmatrix} - 2I$
 $= \begin{bmatrix} 3 & -1 \\ 1 & 2 \end{bmatrix} - 2 \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$

6.00 $= \begin{bmatrix} 3 & -1 \\ 1 & 2 \end{bmatrix} - \begin{bmatrix} 2 & 0 \\ 0 & 2 \end{bmatrix}$

8.00 pm $= \begin{bmatrix} 3-2 & -1-0 \\ 1-0 & 2-2 \end{bmatrix} = \begin{bmatrix} 1 & -1 \\ 1 & 0 \end{bmatrix}$

Ans

July

WEEK 28

May 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 7 | 14 | 21 | 28 | |
| T | 1 | 8 | 15 | 22 | 29 |
| W | 2 | 9 | 16 | 23 | 30 |
| T | 3 | 10 | 17 | 24 | 31 |
| F | 4 | 11 | 18 | 25 | |
| S | 5 | 12 | 19 | 26 | |
| S | 6 | 13 | 20 | 27 | |

June 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 4 | 11 | 18 | 25 | |
| T | 5 | 12 | 19 | 26 | |
| W | 6 | 13 | 20 | 27 | |
| T | 7 | 14 | 21 | 28 | |
| F | 1 | 8 | 15 | 22 | 29 |
| S | 2 | 9 | 16 | 23 | 30 |
| S | 3 | 10 | 17 | 24 | |

July 2018

| | | | | | |
|---|----|----|----|----|----|
| M | 30 | 2 | 9 | 16 | 23 |
| T | 31 | 3 | 10 | 17 | 24 |
| W | 4 | 11 | 18 | 25 | |
| T | 5 | 12 | 19 | 26 | |
| F | 6 | 13 | 20 | 27 | |
| S | 7 | 14 | 21 | 28 | |
| S | 1 | 8 | 15 | 22 | 29 |

6

13 Friday 19/07/18

7.00 am Q5 product of Matrix

8.00 (i)
$$\begin{bmatrix} 3 & 1 & -1 \\ 0 & -1 & 2 \end{bmatrix} \begin{bmatrix} 1 & -1 \\ 0 & 2 \\ 1 & 0 \end{bmatrix}$$

9.00

10.00

$$= \begin{bmatrix} 3+0+(-1) & -3+2-0 \\ 0+0+2 & 0-2+0 \end{bmatrix}$$

11.00

Noon

$$= \begin{bmatrix} 2 & -1 \\ 2 & -2 \end{bmatrix} \underline{\underline{\text{Ans}}}$$

1.00

2.00 (ii)
$$\begin{bmatrix} 3 & -2 & 2 \end{bmatrix} \begin{bmatrix} 1 \\ 2 \\ -2 \end{bmatrix}$$

3.00

$$= \begin{bmatrix} 3-4-4 \end{bmatrix}$$

4.00

$$= \begin{bmatrix} -5 \end{bmatrix} \underline{\underline{\text{Ans}}}$$

5.00

6.00

7.00

8.00 pm

August 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 6 | 13 | 20 | 27 | |
| T | 7 | 14 | 21 | 28 | |
| W | 1 | 8 | 15 | 22 | 29 |
| T | 2 | 9 | 16 | 23 | 30 |
| F | 3 | 10 | 17 | 24 | 31 |
| S | 4 | 11 | 18 | 25 | |
| S | 5 | 12 | 19 | 26 | |

September 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 3 | 10 | 17 | 24 | |
| T | 4 | 11 | 18 | 25 | |
| W | 5 | 12 | 19 | 26 | |
| T | 6 | 13 | 20 | 27 | |
| F | 7 | 14 | 21 | 28 | |
| S | 1 | 8 | 15 | 22 | 29 |
| S | 2 | 9 | 16 | 23 | 30 |

October 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 1 | 8 | 15 | 22 | 29 |
| T | 2 | 9 | 16 | 23 | 30 |
| W | 3 | 10 | 17 | 24 | 31 |
| T | 4 | 11 | 18 | 25 | |
| F | 5 | 12 | 19 | 26 | |
| S | 6 | 13 | 20 | 27 | |
| S | 7 | 14 | 21 | 28 | |

7

July
WEEK 28

National Day (France)

195/170 Saturday 14

7.00 am

(iii)

$$\begin{bmatrix} 2 & -2 & -1 \\ 1 & 1 & -2 \\ 1 & 0 & -1 \end{bmatrix} \begin{bmatrix} -1 & -2 & 5 \\ -1 & -1 & 3 \\ -1 & -2 & 4 \end{bmatrix}$$

8.00

9.00

10.00

11.00

$$= \begin{bmatrix} -2+2+1 & -4+2+2 & 10-6-4 \\ -1-1+2 & -2-1+4 & 5+3-8 \\ -1+0+1 & -2+0+2 & 5+0-4 \end{bmatrix}$$

Noon

$$= \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \text{ Ans}$$

1.00

2.00

(iv)

$$\begin{bmatrix} -1 & -2 & 5 \\ -1 & -1 & 3 \\ -1 & -2 & 4 \end{bmatrix} \begin{bmatrix} 2 & -2 & -1 \\ 1 & 1 & -2 \\ 1 & 0 & -1 \end{bmatrix}$$

3.00

4.00

5.00

6.00

$$= \begin{bmatrix} -2-2+5 & 2-2+0 & 1+4-5 \\ -2-1+3 & 2-1+0 & 1+2-3 \\ -2-2+4 & 2-2+0 & 1+4-4 \end{bmatrix}$$

7.00

$$= \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \text{ Ans}$$

8.00 pm

(8)

| May 2018 | | | | June 2018 | | | | July 2018 | | | | | | | | |
|----------|---|----|----|-----------|----|---|----|-----------|----|----|----|----|----|----|----|----|
| M | 7 | 14 | 21 | 28 | M | 4 | 11 | 18 | 25 | M | 30 | 2 | 9 | 16 | 23 | |
| T | 1 | 8 | 15 | 22 | 29 | T | 5 | 12 | 19 | 26 | T | 31 | 3 | 10 | 17 | 24 |
| W | 2 | 9 | 16 | 23 | 30 | W | 6 | 13 | 20 | 27 | W | 4 | 11 | 18 | 25 | |
| T | 3 | 10 | 17 | 24 | 31 | T | 7 | 14 | 21 | 28 | T | 5 | 12 | 19 | 26 | |
| F | 4 | 11 | 18 | 25 | F | 1 | 8 | 15 | 22 | 29 | F | 6 | 13 | 20 | 27 | |
| S | 5 | 12 | 19 | 26 | S | 2 | 9 | 16 | 23 | 30 | S | 7 | 14 | 21 | 28 | |
| S | 6 | 13 | 20 | 27 | S | 3 | 10 | 17 | 24 | S | 1 | 8 | 15 | 22 | 29 | |

5 Sunday 19/7/18

7.00 am

Q6 $A = \begin{bmatrix} 1 & 4 \\ 2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} -3 & 2 \\ 4 & 0 \end{bmatrix}$, $C = \begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix}$

1.00

1.00

$\Rightarrow A^2 + BC$

$= \begin{bmatrix} 1 & 4 \\ 2 & 1 \end{bmatrix} \begin{bmatrix} 1 & 4 \\ 2 & 1 \end{bmatrix} + \begin{bmatrix} -3 & 2 \\ 4 & 0 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix}$

1.00

$= \begin{bmatrix} 1+8 & 4+4 \\ 2+2 & 8+1 \end{bmatrix} + \begin{bmatrix} -3+0 & 0+4 \\ 4+0 & 0+0 \end{bmatrix}$

1.00

$= \begin{bmatrix} 9 & 8 \\ 4 & 9 \end{bmatrix} + \begin{bmatrix} -3 & 4 \\ 4 & 0 \end{bmatrix}$

2.00

$= \begin{bmatrix} 6 & 12 \\ 8 & 9 \end{bmatrix}$ Ans

4.00

5.00

6.00

7.00

August 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 6 | 13 | 20 | 27 | |
| T | 7 | 14 | 21 | 28 | |
| W | 1 | 8 | 15 | 22 | 29 |
| T | 2 | 9 | 16 | 23 | 30 |
| F | 3 | 10 | 17 | 24 | 31 |
| S | 4 | 11 | 18 | 25 | |
| S | 5 | 12 | 19 | 26 | |

September 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 3 | 10 | 17 | 24 | |
| T | 4 | 11 | 18 | 25 | |
| W | 5 | 12 | 19 | 26 | |
| T | 6 | 13 | 20 | 27 | |
| F | 7 | 14 | 21 | 28 | |
| S | 1 | 8 | 15 | 22 | 29 |
| S | 2 | 9 | 16 | 23 | 30 |

October 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 1 | 8 | 15 | 22 | 29 |
| T | 2 | 9 | 16 | 23 | 30 |
| W | 3 | 10 | 17 | 24 | 31 |
| T | 4 | 11 | 18 | 25 | |
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| S | 6 | 13 | 20 | 27 | |
| S | 7 | 14 | 21 | 28 | |

9

July

WEEK 29

Marine Day (Japan)

7.00 am

$$Q7 \quad A = \begin{bmatrix} -1 & 2 \\ 0 & 1 \end{bmatrix} \quad B = \begin{bmatrix} 1 & 0 \\ -1 & 2 \end{bmatrix}$$

1977/168 Monday 16

8.00

$$(a) (A+B)(A+B) \neq A^2 + 2AB + B^2$$

9.00

$$(A+B)(A+B)$$

10.00

$$\Rightarrow \left(\begin{bmatrix} -1 & 2 \\ 0 & 1 \end{bmatrix} + \begin{bmatrix} 1 & 0 \\ -1 & 2 \end{bmatrix} \right) \cdot \left(\begin{bmatrix} -1 & 2 \\ 0 & 1 \end{bmatrix} + \begin{bmatrix} 1 & 0 \\ -1 & 2 \end{bmatrix} \right)$$

11.00

Noon

$$\Rightarrow \left(\begin{bmatrix} -1+1 & 2 \\ -1 & 3 \end{bmatrix} \right) \cdot \left(\begin{bmatrix} 0 & 2 \\ -1 & 3 \end{bmatrix} \right)$$

1.00

2.00

$$= \begin{bmatrix} 0-2 & 0+6 \\ 0-3 & -2+9 \end{bmatrix} = \begin{bmatrix} -2 & 6 \\ -3 & 7 \end{bmatrix} \checkmark$$

3.00

Now

$$A^2 + 2AB + B^2$$

4.00

$$A^2 = \begin{bmatrix} -1 & 2 \\ 0 & 1 \end{bmatrix} \cdot \begin{bmatrix} -1 & 2 \\ 0 & 1 \end{bmatrix} = \begin{bmatrix} 1+0 & -2+2 \\ 0+0 & 0+1 \end{bmatrix}$$

5.00

$$= \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

6.00

$$2AB = 2 \begin{bmatrix} -1 & 2 \\ 0 & 1 \end{bmatrix} \begin{bmatrix} 1 & 0 \\ -1 & 2 \end{bmatrix}$$

7.00

$$= 2 \begin{bmatrix} -1-2 & 0+4 \\ 0-1 & 0+0 \end{bmatrix} = 2 \begin{bmatrix} -3 & 4 \\ -1 & 0 \end{bmatrix}$$

8.00 pm

$$= \begin{bmatrix} -6 & 8 \\ -2 & 0 \end{bmatrix} \underline{\underline{\text{Ans}}}$$

| June 2018 | | | | | | | July 2018 | | | | | | | | |
|-----------|----|----|----|----|---|----|-----------|----|----|---|----|----|----|----|----|
| M | 7 | 14 | 21 | 28 | M | 4 | 11 | 18 | 25 | M | 30 | 3 | 9 | 16 | 23 |
| T | 8 | 15 | 22 | 29 | T | 5 | 12 | 19 | 26 | T | 31 | 7 | 14 | 21 | 28 |
| W | 9 | 16 | 23 | 30 | W | 6 | 13 | 20 | 27 | W | 1 | 8 | 15 | 22 | 29 |
| T | 10 | 17 | 24 | 31 | T | 7 | 14 | 21 | 28 | T | 2 | 9 | 16 | 23 | 30 |
| F | 11 | 18 | 25 | | F | 8 | 15 | 22 | 29 | F | 3 | 10 | 17 | 24 | |
| S | 12 | 19 | 26 | | S | 9 | 16 | 23 | 30 | S | 4 | 11 | 18 | 25 | |
| S | 13 | 20 | 27 | | S | 10 | 17 | 24 | | S | 5 | 12 | 19 | 26 | |

17 Tuesday 19/07/18

7.00 am

$$B^2 = \begin{bmatrix} 1 & 0 \\ -1 & 2 \end{bmatrix} \cdot \begin{bmatrix} 1 & 0 \\ -1 & 2 \end{bmatrix}$$

8.00

$$= \begin{bmatrix} 1-0 & 0+0 \\ -1-2 & 0+4 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ -3 & 4 \end{bmatrix}$$

10.00

$$A^2 + 2AB + B^2$$

11.00

$$\begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} + \begin{bmatrix} -6 & 8 \\ -2 & 0 \end{bmatrix} + \begin{bmatrix} 1 & 0 \\ -3 & 4 \end{bmatrix}$$

Noon

$$= \begin{bmatrix} 1-6+1 & 0+8+0 \\ 0-2-3 & 1+0+4 \end{bmatrix}$$

2.00

$$= \begin{bmatrix} -4 & 8 \\ -5 & 5 \end{bmatrix} \text{ Ans } \checkmark$$

3.00

4.00 So $(A+B)(A+B) \neq A^2 + 2AB + B^2$

5.00 (b) $(A+B)(A-B) \neq A^2 - B^2$

6.00 $\Rightarrow A+B = \begin{bmatrix} -1 & 2 \\ 0 & 1 \end{bmatrix} + \begin{bmatrix} 1 & 0 \\ -1 & 2 \end{bmatrix}$

7.00

$$= \begin{bmatrix} 0 & 2 \\ -1 & 3 \end{bmatrix}$$

8.00 pm

| August 2018 | | | September 2018 | | | October 2018 | | | | | | | | | | |
|-------------|---|----|----------------|----|----|--------------|----|----|----|----|---|---|----|----|----|----|
| M | 6 | 13 | 20 | 27 | M | 3 | 10 | 17 | 24 | M | 1 | 8 | 15 | 22 | 29 | |
| T | 7 | 14 | 21 | 28 | T | 4 | 11 | 18 | 25 | T | 2 | 9 | 16 | 23 | 30 | |
| W | 1 | 8 | 15 | 22 | 29 | W | 5 | 12 | 19 | 26 | W | 3 | 10 | 17 | 24 | 31 |
| T | 2 | 9 | 16 | 23 | 30 | T | 6 | 13 | 20 | 27 | T | 4 | 11 | 18 | 25 | |
| F | 3 | 10 | 17 | 24 | 31 | F | 7 | 14 | 21 | 28 | F | 5 | 12 | 19 | 26 | |
| S | 4 | 11 | 18 | 25 | S | 1 | 8 | 15 | 22 | 29 | S | 6 | 13 | 20 | 27 | |
| S | 5 | 12 | 19 | 26 | S | 2 | 9 | 16 | 23 | 30 | S | 7 | 14 | 21 | 28 | |

July
WEEK 29

11

Wednesday 18

7:00 am $(A-B) = \begin{bmatrix} -1 & 2 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} 1 & 0 \\ -1 & 2 \end{bmatrix}$

8:00 $= \begin{bmatrix} -2 & 2 \\ 1 & -1 \end{bmatrix}$

9:00 $(A+B)(A-B)$
 $A^L = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$
 $B^L = \begin{bmatrix} 1 & 0 \\ -3 & 4 \end{bmatrix}$

10:00 $\left. \begin{matrix} \begin{bmatrix} 0 & 2 \\ -1 & 3 \end{bmatrix} \begin{bmatrix} -2 & 2 \\ 1 & -1 \end{bmatrix} \\ \begin{bmatrix} 0+2 & 0-2 \\ 2+3 & -2-3 \end{bmatrix} \\ \begin{bmatrix} 2 & -2 \\ 5 & -5 \end{bmatrix} \text{ Ans} \end{matrix} \right\}$

Noon $A^L - B^L = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix} - \begin{bmatrix} 1 & 0 \\ -3 & 4 \end{bmatrix}$

1:00 $= \begin{bmatrix} 0 & 0 \\ 3 & -3 \end{bmatrix} \text{ Ans}$

2:00
3:00
4:00 So $(A+B)(A-B) \neq A^L - B^L$

5:00
6:00
7:00

July

WEEK 29

| May 2018 | | | | | | | June 2018 | | | | | | | July 2018 | | | | | | |
|----------|---|----|----|----|----|--|-----------|---|----|----|----|----|--|-----------|----|---|----|----|----|--|
| M | 7 | 14 | 21 | 28 | | | M | 4 | 11 | 18 | 25 | | | M | 30 | 2 | 9 | 16 | 23 | |
| T | 1 | 8 | 15 | 22 | 29 | | T | 5 | 12 | 19 | 26 | | | T | 31 | 3 | 10 | 17 | 24 | |
| W | 2 | 9 | 16 | 23 | 30 | | W | 6 | 13 | 20 | 27 | | | W | | 4 | 11 | 18 | 25 | |
| T | 3 | 10 | 17 | 24 | 31 | | T | 7 | 14 | 21 | 28 | | | T | | 5 | 12 | 19 | 26 | |
| F | 4 | 11 | 18 | 25 | | | F | 1 | 8 | 15 | 22 | 29 | | F | | 6 | 13 | 20 | 27 | |
| S | 5 | 12 | 19 | 26 | | | S | 2 | 9 | 16 | 23 | 30 | | S | | 7 | 14 | 21 | 28 | |
| S | 6 | 13 | 20 | 27 | | | S | 3 | 10 | 17 | 24 | | | S | 1 | 8 | 15 | 22 | 29 | |

12

19 Thursday 30/7/65

7.00 am Q8 (i)
$$\begin{bmatrix} -1 & 2 & 3 \\ 2 & 1 & 0 \\ 3 & 5 & -1 \end{bmatrix} \begin{bmatrix} a \\ b \\ c \end{bmatrix} = \begin{bmatrix} -a + 2b + 3c \\ 2a + b \\ 3a + 5b - c \end{bmatrix}$$

8.00
$$\Rightarrow \begin{bmatrix} -a + 2b + 3c \\ 2a + b + 0 \\ 3a + 5b - c \end{bmatrix} = \begin{bmatrix} -a + 2b + 3c \\ 2a + b \\ 3a + 5b - c \end{bmatrix}$$

9.00
$$\Rightarrow \begin{bmatrix} -a + 2b + 3c \\ 2a + b \\ 3a + 5b - c \end{bmatrix} = \begin{bmatrix} \text{"} \\ \text{"} \\ \text{"} \end{bmatrix}$$

1.00 (ii)
$$\begin{bmatrix} \cos \theta & 0 & -\sin \theta \\ 0 & 1 & 0 \\ \sin \theta & 0 & \cos \theta \end{bmatrix} \begin{bmatrix} \cos \theta & 0 & \sin \theta \\ 0 & 1 & 0 \\ -\sin \theta & 0 & \cos \theta \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

2.00
$$\begin{bmatrix} \cos^2 \theta + 0 + \sin^2 \theta & 0 + 0 + 0 & \cos \theta \sin \theta + 0 - \cos \theta \sin \theta \\ 0 + 0 + 0 & 0 + 1 + 0 & 0 + 0 + 0 \\ \sin \theta \cos \theta + 0 - \cos \theta \sin \theta & 0 + 0 + 0 & \sin^2 \theta + 0 + \cos^2 \theta \end{bmatrix}$$

7.00
$$= \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \text{ Ans}$$

8.00 pm

August 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 6 | 13 | 20 | 27 | |
| T | 7 | 14 | 21 | 28 | |
| W | 1 | 8 | 15 | 22 | 29 |
| T | 2 | 9 | 16 | 23 | 30 |
| F | 3 | 10 | 17 | 24 | 31 |
| S | 4 | 11 | 18 | 25 | |
| S | 5 | 12 | 19 | 26 | |

September 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 3 | 10 | 17 | 24 | |
| T | 4 | 11 | 18 | 25 | |
| W | 5 | 12 | 19 | 26 | |
| T | 6 | 13 | 20 | 27 | |
| F | 7 | 14 | 21 | 28 | |
| S | 1 | 8 | 15 | 22 | 29 |
| S | 2 | 9 | 16 | 23 | 30 |

October 2018

| | | | | | |
|---|---|----|----|----|----|
| M | 1 | 8 | 15 | 22 | 29 |
| T | 2 | 9 | 16 | 23 | 30 |
| W | 3 | 10 | 17 | 24 | 31 |
| T | 4 | 11 | 18 | 25 | |
| F | 5 | 12 | 19 | 26 | |
| S | 6 | 13 | 20 | 27 | |
| S | 7 | 14 | 21 | 28 | |

July

WEEK 29

13

7.00 am

Q9

$$A = \begin{bmatrix} 2 & -2\sqrt{2} \\ \sqrt{2} & 2 \end{bmatrix}$$

$$B = \begin{bmatrix} 2 & 2\sqrt{2} \\ -\sqrt{2} & 2 \end{bmatrix}$$

20/1/164 Friday 20

8.00

A & B commute.

$$AB = BA.$$

9.00

$$AB = \begin{bmatrix} 2 & -2\sqrt{2} \\ \sqrt{2} & 2 \end{bmatrix} \begin{bmatrix} 2 & 2\sqrt{2} \\ -\sqrt{2} & 2 \end{bmatrix}$$

10.00

$$= \begin{bmatrix} 4 + 2(\sqrt{2})^2 & 4\sqrt{2} - 4\sqrt{2} \\ 2\sqrt{2} - 2\sqrt{2} & 2(\sqrt{2})^2 + 4 \end{bmatrix}$$

Noon

1.00

$$= \begin{bmatrix} 8 & 0 \\ 0 & 8 \end{bmatrix}$$

2.00

$$BA = \begin{bmatrix} 2 & 2\sqrt{2} \\ -\sqrt{2} & 2 \end{bmatrix} \begin{bmatrix} 2 & -2\sqrt{2} \\ \sqrt{2} & 2 \end{bmatrix}$$

3.00

$$= \begin{bmatrix} 4 + 2(\sqrt{2})^2 & -4\sqrt{2} + 4\sqrt{2} \\ -2\sqrt{2} + 2\sqrt{2} & 2(\sqrt{2})^2 + 4 \end{bmatrix}$$

4.00

5.00

$$= \begin{bmatrix} 8 & 0 \\ 0 & 8 \end{bmatrix}$$

6.00

7.00

So $AB = BA$
Hence commute.

8.00 pm