

Excel Application in Matrix Operation

1 Advanced Engineering Mathematics

1. EXCEL Application (DETERMINANT)

The screenshot shows a Microsoft Excel spreadsheet with the following data:

	A	B	C	D	E	F
1						
2	3	2	1			
3	-1	0	1			
4	1	2	2			
5						
6	DETERMINANT	-2				
7						
8						
9						

The formula bar shows the formula: `=MDETERM(A2:C4)`

A callout box explains: MDETERM FUNCTION을 이용해서 (A2:C4)까지 지정해서 위와 같이 씬

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2. EXCEL Application (LEAST SQUARES FIT)

Microsoft Excel - Book1

파일(F) 편집(E) 보기(V) 삽입(I) 서식(O) 도구(T) 데이터(D) 창(W) 도움

LN & =LINEST(C1:C4, A1:A4)

	A	B	C	D	E	F
1	-1		-0.5			
2	0		0.5			
3	1		1.1			
4	2		2.1			
5						
6						
7						
8						
9						

- $X=-1 : -a+b= -0.5$
- $X=0 : b= 0.5$
- $X=1 : a+b= 1.1$
- $X=2 : 2a+b= 2.1$

- 값을 넣고 2개의 CELL을 지정한다.
- 다음 LINEST 함수값
LINEST(Y값, X값)

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2. EXCEL Application (LINAST SQUARES FIT)

Microsoft Excel - Book1

파일(F) 편집(E) 보기(V) 삽입(I) 서식(O) 도구(T) 데이터(D) 창(W) 도움말(H)

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B6 {=LINEST(C1:C4, A1:A4)}

	A	B	C	D	E	F
1	-1		-0.5			
2	0		0.5			
3	1		1.1			
4	2		2.1			
5		a(slope)	b(intercept)			
6	THE LINE OF	0.84	0.38			
7	BEST FIT					
8						
9						

- Ctrl+Shift+Enter 치면 값이 나옴
- 처음값은 기울기 두번째값은 절편
 $y=ax+b$

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3. EXCEL Application (TRANSPOSE)

The screenshot shows the Microsoft Excel interface with the following data in the spreadsheet:

	A	B	C	D	E	F
1						
2	1	3	5			
3	2	-3	6			
4						
5						
6						
7						
8						
9						

A tooltip with the text "행렬 입력" (Matrix Input) is positioned over cell C3. The Excel status bar at the bottom shows the active cell as C3 and the formula as =6.

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3. EXCEL Application (TRANSPOSE)

The screenshot shows the Microsoft Excel interface with the following details:

- File Name: Microsoft Excel - Book1
- Menu Bar: 파일(F), 편집(E), 보기(V), 삽입(I), 서식(O), 도구(T), 데이터(D), 창(W), 도움말(H)
- Standard Toolbar: Includes icons for Save, Print, Undo, Redo, and others.
- Formula Bar: A5, =TRANSPOSE(\$A\$2:\$C\$3)
- Worksheet Grid:

	A	B	C	D	E	F
1						
2	1	3	5			
3	2	-3	6			
4						
5	#VALUE!	#VALUE!				
6	#VALUE!	#VALUE!				
7	#VALUE!	#VALUE!				
8						
9						

A teal callout box points to the error cells with the text: (A5:B7)셀에 TRANSPOSE(\$A\$2:\$C\$3) 입력

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3. EXCEL Application (TRANSPOSE)

The screenshot shows the Microsoft Excel interface with the following data and actions:

- Formula Bar:** `=TRANSPOSE(A2:C3)`
- Worksheet Grid:**

	A	B	C	D	E	F
1						
2	1	3	5			
3	2	-3	6			
4						
5	<code>=TRANSPOSE(\$A\$2:\$C\$3)</code>					
6	<code>#VALUE!</code>	<code>#VALUE!</code>				
7	<code>#VALUE!</code>	<code>#VALUE!</code>				
8						
9						
- Selection:** Cells A5:A7 are selected, indicated by a blue border.
- Callout Box:** A green box contains the text: `(A5:A7) 범위를 선택하고 F2 키` (Select the range (A5:A7) and press the F2 key).

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3. EXCEL Application (TRANSPOSE)

The screenshot shows the Microsoft Excel interface with the following details:

- Title Bar:** Microsoft Excel - Book1
- Menu Bar:** 파일(F), 편집(E), 보기(V), 삽입(I), 서식(O), 도구(T), 데이터(D), 창(W), 도움말(H)
- Standard Toolbar:** Includes icons for Save, Print, Undo, Redo, and other standard functions.
- Formula Bar:** Shows the active cell A5 with the formula `=TRANSPOSE(A2:C3)`.
- Worksheet Grid:**

	A	B	C	D	E	F
1						
2	1	3	5			
3	2	-3	6			
4						
5	1	2				
6	3	-3				
7	5	6				
8						
9						

A callout box with a teal background and white text indicates the keyboard shortcut **Ctrl+Shift+Enter** for entering array formulas.

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4. EXCEL Application (ADDITION)

The screenshot shows the Microsoft Excel interface with the following data in the spreadsheet:

	A	B	C	D	E	F
1	1	3	5			
2	2	-3	6			
3						
4						
5	-3	6	2			
6	0	4	1			
7						
8	-2	9	7			
9	2	1	7			

Cell A8 contains the formula $=A1+A5$, resulting in the value -2. The spreadsheet is titled "Microsoft Excel - Book1".

- A(2X3), B(2X3) 행렬 입력
- A8 CELL에 '=A1+A5' 입력후 C9까지 복사

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5. EXCEL Application (MULTIPLICATION)

Microsoft Excel - Book1

파일(F) 편집(E) 보기(V) 삽입(I) 서식(O) 도구(T) 데이터(D) 창(W) 도움

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LN X ✓ & =MMULT(A1:A3, A5:C5)

	A	B	C	D	E	F
1	3					
2	0					
3	1					
4						
5	2	-1	1			
6						
7	3, A5:C5)					
8						
9						

- A(3X1),B(1X3) 행렬 입력
- CELL을 3X3으로 잡고
'=MMUL(A행렬, B행렬)' 입력

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5. EXCEL Application (MULTIPLICATION)

Microsoft Excel - Book1

파일(F) 편집(E) 보기(V) 삽입(I) 서식(O) 도구(T) 데이터(D) 창(W) 도움(H)

돋움 11 | 가 가 가 | ≡ ≡ ≡ | W % , ←.0 →.0

A7 {=MMULT(A1:A3, A5:C5)}

	A	B	C	D	E	F
1	3					
2	0					
3	1					
4						
5	2	-1	1			
6						
7	6	-3	3			
8	0	0	0			
9	2	-1	1			

Ctrl+Shift+Enter