+ ULTIMATE MATHEMATICS +

(BY: AJAY MITTAL: 9891067390)

WORKSHEET D-7 (with solution)

Once 1 + 8 now part
$$|1+a^2-b^2|$$
 2ab $-2b$ $|2ab|$ $|2ab|$

$$= |1+a^{2}+b^{2}| 0 -2b$$

$$= |1+a^{2}+b^{2}| 0 -2b$$

$$= |1+a^{2}+b^{2}| 2a$$

$$= |b(1+a^{2}+b^{2})| -a(1+a^{2}+b^{2})| 1-a^{2}-b^{2}|$$

$$= (1+a^{2}+b^{2})^{2} \begin{vmatrix} 1 & 0 & -2b \\ 0 & 1 & 2a \\ b & -a & 1-a^{2}-b^{2} \end{vmatrix}$$

exponding

$$= (1+a^2+b^2)^2 \left[1(1-a^2-b^2+2a^2) - 2b(0-b) \right]$$

Any

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JUNE 1			66 mil.
" Dun 2 + Show !	(4+2)2	xy zx	The same of the sa
	24 1	×+=12 42	=2442/x+4+23
-1-1-1 4000	YZ	42 (X+4)V	=2xyz(x+y+z)3
FA 4			
Flying R	arr, 1	R2+7R2, R3-	o TRy
		x'y zxL	
		A(X45), A, S	
	XC-	42 2 (x+	7)2
19 king >	1, 7, 2	Common For	n 51. 62 8 Cy Jay
= 742/ (9	tz)2 x	- x2	
	6	tz)2 y2	
		22 (10)	4-34-1 D
$C_1 \rightarrow C_1 - C_3$	and (2 -	+ (2-63	
121	a Jack		Spirit Land
= (2+2+x)			X5
0		(x+z+y)(xt.	
		(z+x+y) (z	
			*
taking (xty	tz) com	mon from C	, 8 (2
()			
= (xtetz)2	Y+z-X	0	X2
	0	xtz-y	42
	2-x-y	Z-X-Y	(x+y))
R R 1	2 (2)		1
R3 -> R3 - (KI+KL)	be the later	
= (xtyte)2	4+===	0	22)
	2.2.	7+2-4	92
	-24		244
		-2x	~ 7 3

CLASS: D-7



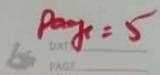
		FAGE					
Multiply C1 & C2	by x Ry 1	lesp.					
= (x+y+z)2 xy+=	2x-x2						
O EK	×7+24-4	L yL					
-Ln	7 -2xy	2 x y					
$C_1 \rightarrow C_1 + C_3$ and C	2+62+63						
= (x+y+z)2 = yy	ZX OXL	× 2					
77 91	- XY+ZY	y ^L					
0	0	dry					
faking x & y Co	mmon from R14	1 Pz Seep					
= (x+x+=12 (6)	W	~ 1					
(+15HZ) (XS)	HZ OX.						
= (x+y+z)2 (xx)	y 7+2						
1	0 0	279					
taking (2xy) (common from R3							
= 2xy(x+y+z)2	ytz ex	x /					
		9					
1	9 7+2	7					
Exponding							
= 2xy (x+y+z)2 (y+z)(x+z) + x(0))-x(y)							
= 2xy (x+y+c)2 (xx+zy+zx+z2 -xx)							
= 2xy (x+x+c)2 (xz+zy+z2)							
= 2714 Z (-1+4+2) (++4+2)							
= 2442 (x+y+z)3 ANS.							

D-7

parye (4)

ON 3+
$$\frac{1}{1}$$
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(0.7)



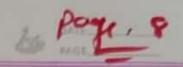
ON: 4 & In sanc 7 ItsnA ItsinB ItsinC SinAtsintA Syranola SinA+sin'A SinB+sin'B + Sin(+ Sin'C prime frat SAISC et an et osceles trangle Soln we have 1 ItsinA I+SinB SinA+Sin2A SinB+Sin2B 1+5in (=0 Sin (+5in2() (27 C2-15, and (3-) (3-1) 1 Sing-sinA Sing-sinA Sinc-sinA = 0SinA + $\sin^2 A$ (SinB- $\sin A$) + $(\sin^2 B - \sin^2 A)$ (Sinc- $\sin A$) + = 0(SinB- $\sin A$) and (SinC- $\sin A$) + = 0= 1+SinA SinB-SinA faking (SinB-SinA) and (SinC-SinA) Common (Sin C-SinA)
from (2 & (3 leeper brely) = (Sing - sinA) (Sinc-sinA) [HSinc+sin/A - Y-sin B - sin/A] =0 = (Sin B-SinA) (Sin(-SinA) (Sin(-SinB) =0 => either SinB-sinA=0 (or) Sin(-sinA=0 | Sin(-sinB=0)

(D-7) Pay -6

=> SinB=SinA (of) SinC=SinA SinC=SinB \Rightarrow B = A \Rightarrow C = A \Rightarrow C = B: Clearly SARC is an isosceles trangle. 04.5 - Show trat AAre is an isoseeles trangle 9 can frat 1 1 1+ca4 1+cab 1+ cac =0 CarA+caA CarB+caB (ar(+cac) Do yourself (same as and NE: 4) ON-6 + Find O Such mat 1 1 1 -4 3 7 -7 Sin (30) $\cos(2\theta) = 0$ Do yourself (same as On11 No:3)

Ans O= nn (or) O= nn+(-1)^{n}(3); nt2 ON-7 + se evaluale. JA3 + J3 55 551 J46 + JT5 5 J115 + 3 115 Selyhar fakiry a and a JF & Common Lum JA3 + 13 J46 + J8 = (53)(55) 12 5 VS VIIS +3

		PAGE.
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	JE3 1 1 1 T VI T T T T T T T T T T T T T T T T T	1 × 3 V5
terking	Ja3 common from C, 2	2 J3 common from C,
= \sqrt{23}	5523 XO + 553	5 5 5 5 5 5 12 1 4 0 Edentical
	, , , , ,	
	= 0 Any	
OMS 8 - 40	that expending show	trat
	Sec ² 0 (0+ ² 0	=0
Hinj	C2 - C2+C3	Will would be a first
Sin	ow expendency show the a cald cos(a+s) B cap (os (b+s) no (ay ca(v+s)	=0
	4 (ad (adcad-5) 6 (ab) (ap)(a) - 5 7 (ay) (ay)	Tin B Sind
	projectly in C3	



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		l nc,		nt'	1-	1.5
	-	nc	7+2(4/2	
		, ,]	
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		1 nem	2) (1)	us)		45 00
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	n	Mt 2	10-01	nty	1 100	
	n(n-1)	(n+2)	(n+1)	(n+4)(n+	S)	
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12	(cmm on	Fom	K3			The second of
- 1		-1		1	1	
2 2	n	(n+		(n+4)		
	n2-n	n2+3h	1+2	n2+7n+1	2	
					110.01	

Par la

& Paye 9



$$\Delta_{1} = \begin{vmatrix} x & y & 2 \\ 1 & 1 & 1 \\ x^{2} & y^{2} & z^{2} \end{vmatrix}$$

$$\begin{array}{c} \lambda_{1} = \begin{vmatrix} x & y & 2 \\ 1 & 1 & 1 \\ y & 1 & y^{2} \\ 2 & 1 & 2^{2} \end{vmatrix}$$

$$\begin{array}{c} \lambda_{1} = -1 & \lambda_{1} \\ \lambda_{2} = -1 & \lambda_{2} \\ \lambda_{3} = -1 & \lambda_{3} \\ \lambda_{4} = -1 & \lambda_{5} \\ \lambda_{5} = -1 & \lambda_{5} \\ \lambda_{7} = -1 & \lambda_{7} \\ \lambda_{7} = -1 \\ \lambda_{7} = -1 & \lambda_{7} \\ \lambda_{7} = -1 \\ \lambda_{7} = -1 & \lambda_{7} \\ \lambda_{7} = -1 \\ \lambda_{7} = -1 & \lambda_{7} \\ \lambda_{7} = -1 \\ \lambda_{7} = -1 & \lambda_{7} \\ \lambda_{7} = -1 \\ \lambda_{7} = -1 & \lambda_{7} \\ \lambda_{7} = -1 \\$$

Sin let
$$A = \begin{bmatrix} 3 & 2 \\ 7 & 5 \end{bmatrix}$$
; $B = \begin{bmatrix} -1 & 1 \\ -2 & 1 \end{bmatrix}$; $C = \begin{bmatrix} 2 & -1 \\ 0 & 4 \end{bmatrix}$

$$\Rightarrow A \times B = C$$

(Pre-muntaly by A-1 and post muntally by B-1) $A^{-1}A \times BB^{-1} = A^{-1}CB^{-1}$

TXT = A-1 CB-1

$$X = A^{-1} CB^{-1}$$

$$A = 15 - 14 = 1$$

$$A = 15 - 14 = 1$$

$$A = 15 - 14 = 1$$

$$A = 15 - 2$$

$$A =$$

Sell Find matern X Such that

Sell $\begin{bmatrix} 2 & 1 \\ 5 & 3 \end{bmatrix} \times \begin{bmatrix} 5 & 3 \\ 3 & 2 \end{bmatrix} = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$ Doyoursely

AN $X = \begin{bmatrix} 9 & -14 \\ -16 & 25 \end{bmatrix}$