



# SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

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COIMBATORE-641 035, TAMIL NADU



## DEPARTMENT OF MATHEMATICS

### UNIT III COMPLEX DIFFERENTIATION

## Puzzle: Complex Cross numbers

### Complex Numbers

Simplify the clues to complete the cross number puzzle. Write answers in the form  $a + bi$ . If either  $a$  or  $b$  equals zero, do not enter a "0" in the puzzle. Simply omit it. Write each term, sign (if negative), and operation (addition or subtraction) in a separate box.

**Example:**  $2 + 3i$  is filled in as 

2	+	3i
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, and  $-2 - 3i$  is filled in as 

-	2	-	3i
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1				2				7		13	14		
			3							15			
		4				8							16
	5					9							17
6					10								
			11							19	18		
									20				
	12					21							

## ACROSS

1.  $(-6 + 7i) + (14 - 6i)$
2.  $(6 + 2i)(3 + 6i)$
3.  $(4 + 3i)(5 + 5i)$
4.  $(8 + 2i) - (6 - 2i)$
5.  $\frac{9 - 3i}{1 + i}$
6.  $(14 + 5i) + (-7 + 7i)$
9.  $(16 + 11i) - (12 + 12i)$
10.  $5 - (-19 + 2i)$
11.  $-5 + (4 + 3i)$
12.  $(-3i)(7i)(-i)$

13. negative signed solution of  $x^2 + 18x + 90 = 0$

15.  $(4 - 2i)(6 - 5i)$

17.  $-\sqrt{-16}$

19.  $(6 + i)(-4 + 2i)$

20.  $(16 + 4i) - (44 + 5i)$

21.  $(1 + 2i)(1 + 3i)$

## DOWN

1. positive signed solution of  $x^2 - 16x + 100 = 0$

3.  $(8 + 12i) - (3 + 6i)$

5.  $10 - (7 - 5i)$

6.  $\frac{29 + 3i}{1 + 2i}$

7.  $(2 + 5i) - (12 + 4i)$

8.  $(-7 + 3i) + (3 - 6i)$

10.  $(5 + i)^2$

11.  $-\sqrt{-1}$

13.  $(-4 - 2i)(2 - 3i)$

14.  $-3(-3 + 6i)$

16.  $(i^2)(4i)$

17.  $-2\left(\frac{3}{2} - \frac{1}{2}i\right)$

18.  $-2(-13 + i)$

19.  $(7i)(4i)$

20.  $(2 - 2i) - (2 + 3i)$

## Answer Key

1	8	+	i		2	6	+	42i		7	-		13	-	14	9	-	3i
	+			3	5	+	35i			10			15	14	-	32i		
	6i		4	2	+	4i		8	-		+		+	18i		16	-	
		5	3	-	6i			9	4	-	i		8i		17	-	4i	
6	7	+	12i			10	24	-	2i								3	
	-	5i		11	-	1	+	3i				19	-	18	26	+	8i	
	11i				i		10i				20	-	28	-	i			
		12	-	21i				21	-	5	+	5i			2i			