NAME: _____Score_____/15
<small>Please **print** your name</small>   <u>**SHOW YOUR WORK !**</u>   <u>**State reasons in words when appropriate.**</u>

1. Consider the complex number 3 – 5i.

   a. What is its real component? **3**

   b. What is its complex component? **-5**

   c. What is i ? $\sqrt{-1}$

   d. What is the opposite of 3 – 5i? **-3 + 5i**

   e. What is the conjugate of 3 – 5i? **3 + 5i**

   f. What is the norm of 3 – 5i? **$3^2 + (-5)^2 = 9 + 25 = 34$**

   g. What is the product (3 – 5i)(3 + 5i)? **The product is the norm of 3 + 5i. So the product is 34**.

2. Compute the sum (5 + 3i) + (2 – 4i).

   (5 + 3i) + (2 – 4i)

   = (5 + 2) + (3i – 4i)

   = 7 – i

3. Compute the product (5 + 3i)(2 – 4i).

   (5 + 3i)(2 – 4i)

   = 10 – 20i + 6i – (3i)(4i)

   = 10 – 14i – 12i2

   = 22 – 14i

> **When writing mathematics.**
>
> **If two expressions are equal that fact should be indicted by using the = symbol.**
>
> **If two expressions are not equal then the = symbol should not be used to separate them.**
>
> **Just because two expressions are written beneath one another does not indicate any relationship between the two expressions except in the case of solving and equation or an inequality.**
>
> **Look at Examples 1 & 2 on Pages 131 & 132**
>
> **Look at your lecture notes (or do you not include the = symbol when I write it). Or maybe you don't take notes.**
>
> **It is presumptuous and foolish for you to try to devise your own method of writing mathematics. Keep in mind that the way we write mathematics has evolved over many centuries and has been guided by really smart people.**
>
> **It has been so fine-tuned that you and I (or textbook authors and teacher) cannot improve on it.**