

Chapter 3 / **Example 12****Modulus of complex numbers**

Find the modulus of the following complex numbers.

**a**  $5 - 12i$       **b**  $\frac{1}{2} - \frac{1}{4}i$       **c**  $\frac{20i - 21}{29}$

To enter the modulus function press **[math]** ► NUM 1:abs(Type  $5 - 12i$ .To enter  $i$  press **[2nd]** **[.]** **[i]**.Press **[enter]**.

$$|5 - 12i| = 13$$

Enter the modulus function by pressing **[math]** ► NUM 1:abs(Type  $\frac{1}{2} - \frac{1}{4}i$  using the fraction template, **[X~~XXXX~~]** **[f1]** 1:n/d to enter the fractions.To enter  $i$  press **[2nd]** **[.]** **[i]**.Press **[enter]**.

$$\frac{1}{2} - \frac{1}{4}i = 0.559$$

Compare this value by entering  $\frac{\sqrt{5}}{4}$  using the fraction template, **[X~~XXXX~~]** **[f1]** 1:n/d to enter the fraction and evaluating.

The values are the same (to the number of digits displayed).

Enter the modulus function by pressing **[math]** ► NUM 1:abs(Type  $\frac{20i}{29} - \frac{21}{29}$  using the fraction template, **[X~~XXXX~~]** **[f1]** 1:n/d to enter the fraction.Press **[enter]**.Note that the TI-84 does not recognize the expression  $\frac{20i - 21}{29}$ 

$$\frac{20i - 21}{29} = 1$$

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