Algebra II Worksheet #5 Unit 5 Selected Solutions

Graph each of the following numbers on the complex number plane. Label your graphs properly.

1. 8 + 5i

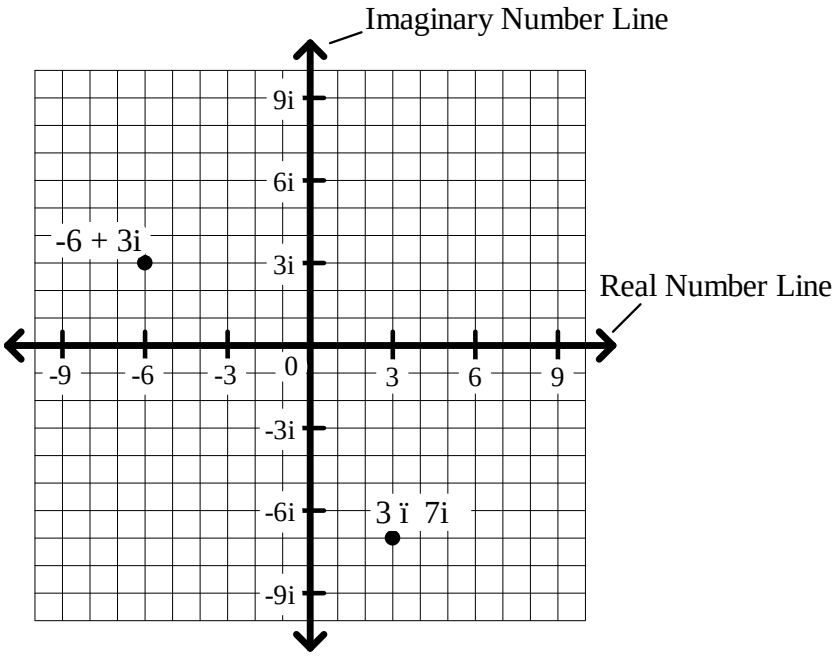
2. -6 + 3i

3. -8 – 4i

4. 3 – 7i

5. -8

6. 6i



Find the indicated absolute values. Express your answers in simplest form.

8. $|-3 - 4i| = \sqrt{(-3)^2 + (-4)^2}$

$= \sqrt{9 + 16} = \sqrt{25} = \underline{5}$

Perform the indicated operations. Express complex answers in **a + bi** form.

15. $(-3 - 8i) + (4 + i) = \underline{1 - 7i}$

24. $(8 + 3i) - (5 + 6i) =$
$(8 + 3i) + (-5 - 6i) = \underline{3 - 3i}$

28. $-3(4 - 7i) = \underline{-12 + 21i}$

30. $-5i(6 + 4i) = -30i - 20i^2 = \underline{20 - 30i}$
(remember $\underline{i^2 = -1}$)

33. $(7 - 3i)(2 - 5i) = 14 - 35i - 6i + 15i^2$
$= \underline{-1 - 41i}$

38. $(1 - i)(1 + 3i) = 1 + 3i - i - 3i^2$
$= \underline{4 + 2i}$

39. $(2 + 5i)^2 = 4 + 20i + 25i^2 = \underline{-21 + 20i}$

43. $(2 + i)^3 =$
$(2 + i)^2 = 4 + 4i + i^2 = 3 + 4i$
$(2 + i)^3 = (3 + 4i)(2 + i)$
$= 6 + 3i + 8i + 4i^2 = \underline{2 + 11i}$