

10/24

Wednesday, October 24, 2012
8:46 AM

Adding / Subtracting Complex #'s

(*Common radicals)

ex

$$\textcircled{1} \sqrt{-49} + \sqrt{-121}$$

$$7i + 11i \quad (\text{both have } i\text{'s})$$

$$= 18i$$

$$\textcircled{2} 2 + \sqrt{-9} + 5\sqrt{-4}$$

$$2 + 3i + 5(2i)$$

$$2 + \underline{3i} + \underline{10i}$$

$$2 + 13i \quad (a + bi \text{ form})$$

$$\textcircled{3} (-3 - 8i) + (6 + i) \quad (\text{parenthesis mean nothing b/c } +)$$

$$= 3 - 7i$$

$$\textcircled{4} (-3 - 8i) - (-2 + 4i)$$

change signs

$$\Rightarrow -3 - 8i + 2 - 4i$$

$$-1 - 12i$$

$$\textcircled{5} (5 - 2\sqrt{-12}) + (4 + \sqrt{-27})$$

$$5 - 2i\sqrt{4}\sqrt{3} \quad 4 + i\sqrt{9}\sqrt{3}$$

$$5 - \underline{2i(2)}\sqrt{3} \quad +$$

$$\boxed{5} - \underline{4i}\sqrt{3}$$

$$\boxed{4} + \underline{3i}\sqrt{3}$$

$$= 9 - i\sqrt{3}$$

$$\textcircled{6} (4 + \sqrt{-9}) - (\sqrt{-25})$$

$$4 + 3i - (5i)$$

$$4 + 3i - 5i$$

$$4 - 2i$$

Multiplying Complex #'s

① $(6 + \sqrt{-100})(3 + \sqrt{-4})$
 $(6 + 10i)(3 + 2i)$ Rewrite i's first

FOIL $18 + 12i + 30i + 20\boxed{i^2}$

$$18 + 42i - 20$$

$$-2 + 42i \quad (a+bi)$$

② $(2 + 3\sqrt{-8})(-1 + \sqrt{-18})$
 $2 + 3i\sqrt{4}\sqrt{2} \quad -1 + i\sqrt{9}\sqrt{2}$

$$(2 + 6i\sqrt{2})(-1 + 3i\sqrt{2})$$

FOIL $-2 + 6i\sqrt{2} - 6i\sqrt{2} + 18\boxed{i^2}(2)$

$$-2 + 18(-1)(2)$$

$$-2 - 36$$

$$-38$$

③ Multiply $6 - 4i$ by its conjugate.

$$(6 - 4i)(6 + 4i)$$

$$36 + 24i - 24i - 16\boxed{i^2} \quad \text{F, L!}$$

$$36 + 16 = 52$$