

## SECTION 5-2 EXTRA PRACTICE

Fill in the i-chart ----->

$\sqrt{-1}$	=	_____
$i^2$	=	_____
$i^3$	=	_____
$i^4$	=	_____

Simplify the following. Factor-tree these bad boys! Don't forget to pop an "i" out for negative square roots.

1)  $\sqrt{99}$

2)  $\sqrt{-32}$

3)  $\sqrt{-49a^2b^3}$

4)  $\sqrt{10} \cdot \sqrt{50}$

5)  $(3\sqrt{11})(2\sqrt{-11})$

6)  $\sqrt{-4} \cdot \sqrt{-25}$

Divide. Treat them like separate problems.

7)  $\sqrt{\frac{6}{121}}$

Divide. Put them together as one square root, divide, then simplify!

8)  $\frac{\sqrt{70}}{\sqrt{35}}$

Add or subtract the following complex numbers. Should you be multiplying at any point???? NO!!!!

9)  $(6 + 12i) + (4 - 7i)$

10)  $(8 - 3i) - (i - 5)$

11)  $-4(1 + 2i) + 4$

Multiply. Consult the “i”-chart after you do the multiplication. #14 IS a FOIL problem!

12)  $(7i^3)(2i^5)$

13)  $(5i^7)^2$

14)  $(5 + 2i)(5 - 3i)$

Name the conjugate for each. There is no work to do, just write it in the blank, and DONE!

15)  $17 - 12i$  \_\_\_\_\_

16)  $-4 + 4i$  \_\_\_\_\_

17)  $8 + 6i\sqrt{11}$  \_\_\_\_\_

Simplify by eliminating the “i” from the denominator. One thing on the bottom – multiply by just “i”. Two things on the bottom – multiply by the conjugate. #20 is the toughest one on the whole sheet.

18)  $\frac{-5}{2i}$

19)  $\frac{3}{1+2i}$

20)  $\frac{2+3i}{3-2i}$

Solve the equations by moving everything to the other side, then taking a square root to get rid of the  $x^2$ . All answers to equations must include this symbol:  $\pm$  Don't forget to pop any “i”s out!

21)  $x^2 + 100 = 0$

22)  $5y^2 - 40 = 0$

23)  $2x^2 + 19 = 1$