

powers of  $i$ :

Book:

$$1. i^{35} = -i$$

$$35/4 = 8.75$$

$$i = i \quad .25$$

$$i^2 = -1 \quad .5$$

$$i^3 = -i \quad .75$$

$$i^4 = 1 \quad 1.0$$

$$6. 2(-1 + 6i) - 3(2 + 5i)$$

$$-2 + 12i - 6 - 15i$$

$$\boxed{-8 - 3i}$$

$$3. (5 - 7i) - (8 + 2i)$$

$$5 - 7i - 8 - 2i$$

$$\boxed{-3 - 9i}$$

HW Assessment  
4/20

powers of  $i$

3.  $i^{27} =$

multiplying complex Numbers

just like polynomials  
but  $i^2 = -1$

$$3i(7-4i)$$

$$21i - 12i^2$$

$$21i - 12(-1)$$

$$21i + 12$$

$$\boxed{12 + 21i}$$

$$(3-2i)(4+5i)$$

$$12 + 15i - 8i - 10i^2$$

$$12 + 7i - 10i^2$$

$$-10(-1)$$

$$12 + 7i + 10$$

$$\boxed{22 + 7i}$$

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

$$9 + 6i - 6i - 4i^2$$

$$9 - 4i^2$$

$$9 + 4 = \boxed{13}$$

$$(6-3i)^2$$

$$(6-3i)(6-3i)$$

$$36-18i-18i+9i^2$$

$$36-36i+9i^2$$

$$36-36i-9$$

$$\boxed{25-36i}$$

$$(3-i\sqrt{3})^2$$

$$(3-i\sqrt{3})(3-i\sqrt{3})$$

$$9-3i\sqrt{3}-3i\sqrt{3}+i^2\sqrt{9}$$

$$9-6i\sqrt{3}+i^2\sqrt{9}$$

$$-1 \cdot 3$$

$$9-6i\sqrt{3}-3$$

$$\boxed{6-6i\sqrt{3}}$$

$$(\sqrt{3}-\sqrt{-7})(\sqrt{3}+\sqrt{-7})$$

$$(\sqrt{3}-i\sqrt{7})(\sqrt{3}+i\sqrt{7})$$

$$3 + \cancel{i\sqrt{21} - i\sqrt{21}} - i^2\sqrt{49}$$

$$= (-1)(7)$$

$$3+7$$

$$\boxed{10}$$

your turn

$$1) 7i(2 + 3i)$$

$$2) (3 - i)^2$$

$$3) (4 - i\sqrt{5})(4 + i\sqrt{5})$$

$$\frac{1}{i\sqrt{5}} \cdot \frac{i\sqrt{5}}{i\sqrt{5}} = \frac{i\sqrt{5}}{i^2\sqrt{25}} = \frac{i\sqrt{5}}{-5}$$