Set 7.9 notes on Imaginary

a) simplify
   ① take negative out of $\sqrt{}$ by i
   ② simplify radicand if possible

1. $\sqrt{-15}$ =
4. $\sqrt{-25}$ =
7. $\sqrt{-3}$ =
10. $\sqrt{-27}$ =
13. $-\sqrt{-49}$ =
16. $6-\sqrt{-84}$ =

b) complex #'s $a+bi$ add/subt
   ① real w/ real (outside w/ outside)
   ② imag w/ imag (inside w/ inside)

19. $(3+2i)+(5-i)$ =
22. $(-2-5i)+(1-3i)$ =
25. $(3-i)-(5+2i)$ =
28. $(-2-3i)-(1-5i)$ =

c) multiply
   ① take negative out by i
   ② simplify radical
   ③ multiply ($i^2=-1$)

31. $\sqrt{-36} \cdot \sqrt{-9} =$

34. $\sqrt{-11} \cdot \sqrt{-3} =$

37. $5i(4-7i) =$

40. $(4+3i)(2+5i) =$

43. $(6-5i)(3-4i) =$

46. $(-4+5i)(3-4i) =$

49. $(2+3i)(2+3i) =$

d) Simplify

$\sqrt{-1} = i\sqrt{1} = i$ $\quad i^1 = i$

$\sqrt{-1} \cdot \sqrt{-1} = i\sqrt{1} \cdot i\sqrt{1} = i^2 = -1$ $\quad i^2 = -1$

$\sqrt{-1} \cdot \sqrt{-1} \cdot \sqrt{-1} = i^3 = -i$ $\quad i^3 = -i$

$\sqrt{-1} \cdot \sqrt{-1} \cdot \sqrt{-1} \cdot \sqrt{-1} = i^4 = 1$ $\quad i^4 = 1$

53. $i^7 =$

57. $i^{42} =$

61. $i^6 =$

65. $7 + i^4 =$

68. $i^5 + 37i =$

71. $i^5 + i^7 =$

74. $i - i^2 + i^3 - i^4 + i^5 =$

77. $\dfrac{8 - \sqrt{-24}}{4}$

e) Multiply by "1" aka conjugate

79. $\dfrac{3+2i}{2+i}$

83. $\dfrac{8-3i}{7i}$

87. $\dfrac{2i}{5-4i}$

91. $\frac{2-4i}{8i}$

f) Plug in solution and solve

95. $1+2i \rightarrow (1+2i)^2 - 2(1+2i)+5 = 0$

HW class A
a) 2nd column
b) 3rd column
c) 2nd column
d) 2nd & 4th column 54-64
2nd column 66-75
e) 3rd & 4th column
f) 96-98

HW class B
a) 3rd column
b) 2nd column
c) 3rd column
d) 3rd & 4th column 55-64
3rd column 67-76
e) 2nd & 4th column
f) 96-98