

# LT 4.1 Skills Practice #2

## Complex Numbers

Solve each equation.

1.  $3x^2 + 3 = 0$   
 $-3 \quad -3$

2.  $5x^2 + 125 = 0$

3.  $4x^2 + 20 = 0$

4.  $-x^2 - 16 = 0$

5.  $x^2 + 18 = 0$

6.  $8x^2 + 96 = 0$

Find the values of  $l$  and  $m$  that make each equation true.

7.  $20 - 12i = 5l + (4m)i$

8.  $l - 16i = 3 - (2m)i$

9.  $(4+l) + (2m)i = 9 + 14i$   
 $4+l=9 \quad 2mi=14i$   
 $l=5 \quad mi=7i$   
 $m=7$

10.  $(3-m) + (7l-14)i = 1 + 7i$   
 $3-m=1 \quad (7l-14)i=7i$   
 $-m=-2 \quad 7l-14=7$   
 $m=2 \quad 7l=21$   
 $l=3$

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

②  $5x^2 = -125$   
 $x^2 = -25$   
 $x = \sqrt{-25}$   
 $x = 5i$

③  $4x^2 = -20$   
 $x^2 = -5$   
 $x = \sqrt{-5}$   
 $x = i\sqrt{5}$

④  $-x^2 = 16$   
 $x^2 = -16$   
 $x = \sqrt{-16}$   
 $x = 4i$

⑤  $x^2 = -18$   
 $x = \sqrt{-18}$   
 $x = 3i\sqrt{2}$

⑥  $8x^2 = -96$   
 $x^2 = -12$   
 $x = 2i\sqrt{3}$

⑦  $20 - 12i = 5l + (4m)i$   
 $20 = 5l$   
 $4 = l$

$\frac{-12i}{4} = \frac{4mi}{4}$   
 $-3i = mi$   
 $-3 = m$

⑧  $l - 16i = 3 - (2m)i$   
 $l = 3$   
 $\frac{-16i}{-2} = \frac{-2mi}{-2}$   
 $8i = mi$   
 $8 = m$