

\*AAT

Chapter 2: Imaginary Numbers Practice (IC)

Name: Kely  
Date: \_\_\_\_\_ Period: \_\_\_\_\_

○ Simplify each expression completely. Use the imaginary  $i$  if needed.

1.  $\sqrt{-27xy^2}$

$$i\sqrt{27xy^2} = 3i|y|\sqrt{3x}$$

2.  $\frac{10 \pm \sqrt{-225}}{5}$

$$\frac{10 \pm i\sqrt{225}}{5} = \frac{10 \pm 15i}{5} = 2 \pm 3i$$

3.  $\frac{9 \pm \sqrt{-18}}{6}$

$$\frac{9 \pm i\sqrt{18}}{6} = \frac{9 \pm 3i\sqrt{2}}{6} = \frac{3 \pm i\sqrt{2}}{2}$$

4.  $7i - 5i + 2i$

$$2i + 2i = 4i$$

5.  $\sqrt{-9} + \sqrt{-49}$

$$3i + 7i = 10i$$

6.  $\sqrt{-144} - \sqrt{-81}$

$$12i - 9i = 3i$$

7.  $(7i)(3i)$

$$21i^2 = -21$$

8.  $\sqrt{-121} \cdot \sqrt{4}$

$$11i \cdot 2 = 22i$$

9.  $\sqrt{\frac{-16}{25}} \cdot \sqrt{\frac{-100}{64}}$

$$\left(\frac{4}{5}\right)i \left(\frac{10}{8}\right)i = i^2 = -1$$

10.  $i^{17}$

$$i$$

11.  $i^{70}$

$$-1$$

12.  $i^{87}$

$$-i$$