

Lesson 15 Practice Problems

1. Select all the expressions that are equivalent to $(3 - 5i)(-8 + 2i)$.

A. $-24 + 6i - 40i + 10i^2$

B. $-24 + 46i - 10$

C. $-24 + 6i + 40i - 10i^2$

D. $-14 - 34i$

E. $-34 - 34i$

F. $-24 + 46i + 10$

G. $46i - 14$

H. $-34 + 46i$

2. Explain or show how to write $(20 - i)(8 + 4i)$ in the form $a + bi$, where a and b are real numbers.

3. Without going through all the trouble of writing the left side in the form $a + bi$, how could you tell that this equation is false?

$$(-9 + 2i)(10 - 13i) = -68 - 97i$$

4. Andre spilled something on his math notebook and some parts of the problems he was working on were erased. Here is one of the problems:

$$(\quad - 2i)(\quad + 2i) = \quad - 10i$$

a. What could go in the blanks?

b. Could other numbers work, or is this the only possibility? Explain your reasoning.

5. Find the exact solution(s) to each of these equations, or explain why there is no solution.

a. $x^2 = 49$

b. $x^3 = 49$

c. $x^2 = -49$

d. $x^3 = -49$

(From Unit 3, Lesson 8.)

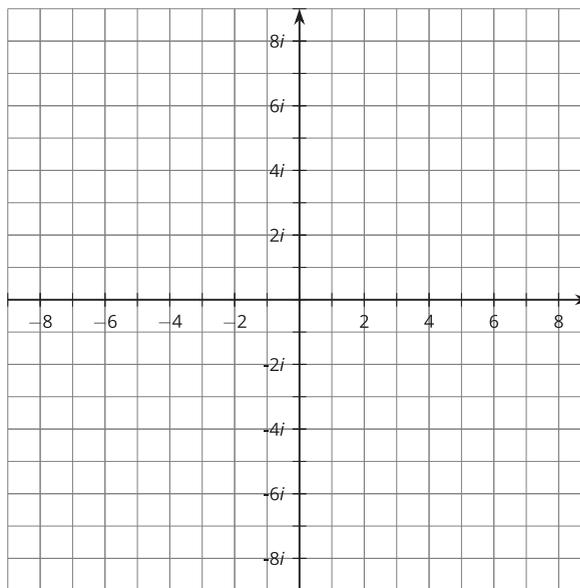
6. Write each expression in the form $a + bi$, where a and b are real numbers. Optionally, plot $3 + 2i$ in the complex plane. Then plot and label each of your answers.

a. $2(3 + 2i)$

b. $i(3 + 2i)$

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

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



(From Unit 3, Lesson 13.)

7. The table shows two investment account balances growing over time.

time (years since 2000)	account <i>A</i> (thousands of dollars)	account <i>B</i> (thousands of dollars)
0	5	10
1	5.1	10.15
2	5.2	10.3
3	5.3	10.45
4	5.4	10.6

- Describe a pattern in how each account balance changed from one year to the next.

- Define the amount of money, in thousands of dollars, in accounts *A* and *B* as functions of time t , where t is years since 2000, using function notation.

- Will account *A* ever have the same balance as account *B*? If so, when? Explain how you know.

(From Unit 1, Lesson 10.)