Lesson 14 Practice Problems

1. Select **all** expressions that are equivalent to $8 + 16i$.

   A. $2(4 + 8i)$

   B. $2i(8 - 4i)$

   C. $4(2i - 4)$

   D. $4i(4 - 2i)$

   E. $-2i(-8 - 4i)$

2. Which expression is equivalent to $(-4 + 3i)(2 - 7i)$?

   A. $-29 - 22i$

   B. $-29 + 34i$

   C. $13 - 22i$

   D. $13 + 34i$

3. Match the equivalent expressions.

   A. $i^2(3 + i)$

   B. $-4i \cdot 5i$

   C. $5i(4 - 3i)$

   D. $(1 + 2i)(-1 + 3i)$

   1. $(3 + 5i) - (10 + 4i)$

   2. $(2 + 4i)(2 - 4i)$

   3. $(1 - 4i) + (-4 + 3i)$

   4. $(-6 + 12i) - (-21 - 8i)$

4. Write each expression in $a + bi$ form.

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

   b. $7i(4 - i)$

   c. $(3i)^3$

   d. $(3 + 5i)(4 + 3i)$

   e. $(3i)(-2i)(4i)$

5. Here is a method for solving the equation $\sqrt{5 + x} + 10 = 6$. Does the method produce the correct solution to the equation? Explain how you know.

$$\begin{aligned} \sqrt{5 + x} + 10 &= 6 \\ \sqrt{5 + x} &= -4 && \text{(after subtracting 10 from each side)} \\ 5 + x &= 16 && \text{(after squaring both sides)} \\ x &= 11 \end{aligned}$$

(From Unit 3, Lesson 7.)

6. Write each expression in the form $a + bi$, where a and b are real numbers.

   a. $4(3 - i)$

   b. $(4 + 2i) + (8 - 2i)$

   c. $(1 + 3i)(4 + i)$

   d. $i(3 + 5i)$

   e. $2i \cdot 7i$

(From Unit 3, Lesson 13.)