### Lesson 13 Practice Problems

1. Which expression is equivalent to $2i\left(5+3i\right)$?
	1. $-6+10i$
	2. $6+10i$
	3. $-10+6i$
	4. $10+6i$
2. Lin says, “When you add or multiply two complex numbers, you will always get an answer you can write in $a+bi$ form.”
* Noah says, “I don’t think so. Here are some exceptions I found:”
* $\left(7+2i\right)+\left(3−2i\right)=10$
* $\left(2+2i\right)\left(2+2i\right)=8i$
	1. Check Noah’s arithmetic. Is it correct?
	2. Can Noah’s answers be written in the form $a+bi$, where $a$ and $b$ are real numbers? Explain or show your reasoning.
1. Explain to someone who missed class how you would write $\left(3−5i\right)\left(-2+4i\right)$ in the form $a+bi$, where $a$ and $b$ are real numbers.
2. Which expression is equal to $729^{\frac{2}{3}}$?
	1. 243
	2. 486
	3. $9^{2}$
	4. $27^{3}$
* (From Unit 3, Lesson 4.)
1. Find the solution(s) to each equation, or explain why there is no solution.
	1. $2x^{2}−\frac{2}{3}=5\frac{1}{3}$
	2. $\left(x+1\right)^{2}=81$
	3. $3x^{2}+14=12$
* (From Unit 3, Lesson 7.)
1. Plot each number in the complex plane.
	1. $5i$
	2. $2+4i$
	3. -3
	4. $1−3i$
	5. $-5−2i$
* 
* (From Unit 3, Lesson 11.)
1. Select **all** the expressions that are equivalent to $\left(3x+2\right)\left(x−4\right)$ for all real values of $x$.
	1. $3x^{2}−12$
	2. $3x^{2}−10x−8$
	3. $3\left(x^{2}+2x−4\right)$
	4. $3\left(x^{2}−3x\right)−\left(x+8\right)$
	5. $3x\left(x−3\right)−2\left(5x+4\right)$
	6. $3x\left(x−4\right)+2\left(x−4\right)$
* (From Unit 2, Lesson 23.)



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