## Lesson 14: More Arithmetic with Complex Numbers

* Let’s practice adding, subtracting, and multiplying complex numbers.

### 14.1: Which One Doesn’t Belong: Complex Expressions

Which one doesn’t belong?

A.

B.

C.

D.

### 14.2: Powers of

1. Write each power of in the form , where and are real numbers. If or is zero, you can ignore that part of the number. For example, can simply be expressed as .
2. What is ? Explain your reasoning.
3. What is ? Explain your reasoning.

#### Are you ready for more?

1. Write each power of in the form , where and are real numbers. If or is zero, you can ignore that part of the number. For example, can simply be expressed as .
2. Compare and contrast the powers of  with the powers of . What is the same? What is different?

### 14.3: Add 'Em Up (or Subtract or Multiply)

For each row, your partner and you will each rewrite an expression so it has the form , where and are real numbers. You and your partner should get the same answer. If you disagree, work to reach agreement.

|  |  |
| --- | --- |
| partner A | partner B |
|  |  |
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### Lesson 14 Summary

Suppose we want to write the product in the form , where and are real numbers. For example, we might want to compare our solution with a partner’s, and having answers in the same form makes that easier. Using the distributive property,

Keeping track of the negative signs is especially important since it is easy to mix up the fact that with the fact that .

Next, suppose we want to write the difference as a single complex number in the form . Distributing the negative and combining like terms, we get:

Again, it is important to be precise with negative signs. It is a common mistake to just subtract rather than subtracting .



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