- **Concepts**:

  Complex numbers

  Binomials

  Arithmetic with complex numbers

  We first distribute to find

  $$(3-2i)(-2-3i) = -6-9i+4i+6i^2.$$

  Since $i^2 = -1$ we see that

  $$(3-2i)(-2-3i) = -6-9i+4i+6(-1) = -6-9i+4i-6.$$

  By collecting like terms, we find

  $$(3-2i)(-2-3i) = -12-5i.$$

- **Conclusions**:

  When we multiply the given numbers, we find

  $$(3-2i)(-2-3i) = -12-5i.$$

11.3 Problems (6 pt Problems)

1. Simplify $\sqrt{-20}$.
2. Divide $\dfrac{3-2i}{-2+3i}$.
3. Solve $2x(x+4) = -3$.

11.4 Exercises

1. Simplify $4\sqrt{-32}$.
2. Write in standard form: $-2+6i-(5+2i)$.
3. Write in standard form: $(-2+6i)(5+2i)$.
4. Write in standard form: $\dfrac{-2+6i}{-5-2i}$.
5. Solve $x^2-5x+20=0$.
6. Solve $3x(x+2) = 2x-5$.