Additional Problems: Complex Numbers

**The Fundamental Theorem of Algebra**

**Some problems include the solution. Please remove before sharing with students.**

1. Show that the Fundamental Theorem of Algebra is true for the quadratic polynomial through solving by factoring. Which of the following statements accurately describes the solution set?

There are two irrational solutions.

There are two identical solutions.

There are two non-real solutions.

There are two rational solutions.

\*\*Solution:\*\* There are two identical solutions.

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\*\*Solution:\*\* There are two rational solutions.

1. Without solving, apply the Fundamental Theorem of Algebra to determine how many roots will have.

four roots

three roots

six roots

five roots

\*\*Solution:\*\* four roots

1. Without solving, apply the Fundamental Theorem of Algebra to determine how many roots will have.

seven roots

five roots

nine roots

three roots

\*\*Solution:\*\* seven roots

1. Without solving, apply the Fundamental Theorem of Algebra to determine how many roots will have.

six roots

five roots

four roots

eight roots

\*\*Solution:\*\* six roots

1. Apply the Fundamental Theorem of Algebra to determine how many imaginary roots will have, if you know it has two x-intercepts.

four imaginary roots

two imaginary roots

no imaginary roots

one imaginary root

\*\*Solution:\*\* two imaginary roots

1. Apply the Fundamental Theorem of Algebra to determine how many imaginary roots will have, if you know it has four x-intercepts.

six imaginary roots

four imaginary roots

two imaginary roots

no imaginary roots

\*\*Solution:\*\* two imaginary roots

1. Apply the Fundamental Theorem of Algebra to determine how many imaginary roots will have, if you know it has three x-intercepts.

five imaginary roots

three imaginary roots

two imaginary roots

no imaginary roots

\*\*Solution:\*\* two imaginary roots

1. Solve the polynomial equation . Which of the following is a factor?

\*\*Solution:\*\*

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\*\*Solution:\*\*

1. Solve the polynomial equation -6. Which of the following is a factor?

\*\*Solution:\*\*

1. What are the roots of ?

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