

Watch. Practice. Understand. | Lesson 207

2021The Secret of Finding Polynomial Rational and Irrational Zeros

Watch the matching video: <https://www.youtube.com/watch?v=PKvsKv5TcoE>

Practice focus: Polynomial zeros and division

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Find all zeros of $x^3 - 2x^2 + 4x - 8$.

02 Divide $x^3 - 6x^2 + 11x - 6$ by $x - 1$.

03 Find the remainder when $2x^3 - x + 5$ is divided by $x - 2$.

04 A real-coefficient polynomial has zeros 1 and $2i$. Find a monic cubic with these zeros.

Worked answers | Lesson 207

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01 Find all zeros of $x^3 - 2x^2 + 4x - 8$.

Group: $(x - 2)(x^2 + 4)$. Zeros: 2, 2i, -2i.

02 Divide $x^3 - 6x^2 + 11x - 6$ by $x - 1$.

Synthetic division gives $x^2 - 5x + 6$ with remainder 0.

03 Find the remainder when $2x^3 - x + 5$ is divided by $x - 2$.

Remainder theorem: $f(2) = 16 - 2 + 5 = 19$.

04 A real-coefficient polynomial has zeros 1 and 2i. Find a monic cubic with these zeros.

-2i must also be a zero. $(x - 1)(x^2 + 4) = x^3 - x^2 + 4x - 4$.