

Pre-Cal Chapter 3 Sample Test Questions

Lesson 179 | Precalculus | Polynomial zeros and division • Rational expressions and graphs

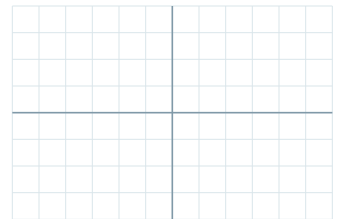
<https://www.youtube.com/watch?v=pseyqLGicql>

Related review: exact coverage needs teacher confirmation.

Name: _____ Date: _____ Show your reasoning.

01 Find every real and complex zero: $x^2 - 4x - 77$.

02 Analyze and sketch $f(x) = 13/(x - 9) + 4$. Give domain, asymptotes, intercepts, and two points.



03 Find every real and complex zero: $x^4 - 173x^2 + 676$.

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04

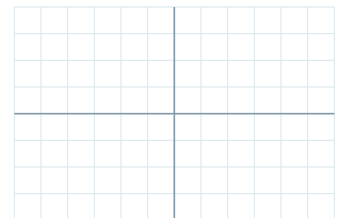
Simplify $(x^2 + 9x - 52)/(x - 4)$ and identify the excluded input and hole.

05

Find every real and complex zero: $x^3 - 3x^2 + 16x - 48$.

06

Analyze and sketch $f(x) = 13/(x - 3) + 10$. Give domain, asymptotes, intercepts, and two points.



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01 Find every real and complex zero: $x^2 - 4x - 77$.

Factorization: $(x - 11)(x + 7)$. Zeros: -7, 11.

02 Analyze and sketch $f(x) = 13/(x - 9) + 4$. Give domain, asymptotes, intercepts, and two points.

Domain $x \neq 9$; vertical asymptote $x=9$; horizontal asymptote $y=4$. Zero: $x = 23/4$. y-intercept $23/9$. Points (10, 17) and (8, -9).

03 Find every real and complex zero: $x^4 - 173x^2 + 676$.

Factorization: $(x - 13)(x - 2)(x + 2)(x + 13)$. Zeros: -13, -2, 2, 13.

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04

Simplify $(x^2 + 9x - 52)/(x - 4)$ and identify the excluded input and hole.

Factor the numerator as $(x-4)(x+13)$. Cancel for $x \neq 4$; simplified rule $x+13$. The original domain excludes 4; the hole is $(4, 17)$.

05

Find every real and complex zero: $x^3 - 3x^2 + 16x - 48$.

Factorization: $(x - 3)(x^2 + 16)$. Zeros: 3.

06

Analyze and sketch $f(x) = 13/(x - 3) + 10$. Give domain, asymptotes, intercepts, and two points.

Domain $x \neq 3$; vertical asymptote $x=3$; horizontal asymptote $y=10$. Zero: $x = 17/10$. y-intercept $17/3$. Points $(4, 23)$ and $(2, -3)$.