

Big Idea Algebra II Chapter 1 to 3 Lecture part 1

Lesson 103 | Algebra II | Graph transformations • Quadratic equations and graphs • Complex numbers

<https://www.youtube.com/watch?v=utZ5zhOz684>

Related review: exact coverage needs teacher confirmation.

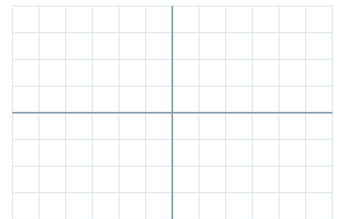
Name: _____ Date: _____ Show your reasoning.

01

Describe the transformations from $y = \sqrt{x}$ to $y = -8\sqrt{(x - (-6))} + 4$. Give domain, range, and endpoint.

02

For $y = 8x^2 - 144x + 645$, find the vertex, axis, range, and both x-intercepts; sketch the graph.

**03**

Write $(5 + 7i)(10 - 3i)$ in $a + bi$ form.

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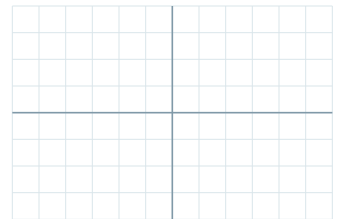
Name: _____ Date: _____ Show your reasoning.

04

Describe the transformations from $y = \sqrt{x}$ to $y = -7\sqrt{(x - (-6))} + 9$. Give domain, range, and endpoint.

05

For $y = 4x^2 + 8x + 2$, find the vertex, axis, range, and both x-intercepts; sketch the graph.

**06**

Write $(7 + 5i)(13 - 5i)$ in $a + bi$ form.

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- 01** Describe the transformations from $y = \sqrt{x}$ to $y = -8\sqrt{x - (-6)} + 4$. Give domain, range, and endpoint.

Shift horizontally by -6, stretch vertically by 8, reflect across the x-axis, and move up 4. Domain $x \geq -6$; range $y \leq 4$; endpoint $(-6, 4)$.

- 02** For $y = 8x^2 - 144x + 645$, find the vertex, axis, range, and both x-intercepts; sketch the graph.

Complete the square: $y = 8(x - 9)^2 - 3$. Vertex $(9, -3)$; axis $x = 9$; range $y \geq -3$. Solve $(x - 9)^2 = 3/8$: $x = 9 \pm \sqrt{3/8}$.

- 03** Write $(5 + 7i)(10 - 3i)$ in $a + bi$ form.

Distribute and use $i^2 = -1$: real part $50 + 21 = 71$; imaginary coefficient $70 - 15 = 55$. Result $71 + 55i$.

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04

Describe the transformations from $y = \sqrt{x}$ to $y = -7\sqrt{(x - (-6))} + 9$. Give domain, range, and endpoint.

Shift horizontally by -6, stretch vertically by 7, reflect across the x-axis, and move up 9. Domain $x \geq -6$; range $y \leq 9$; endpoint $(-6, 9)$.

05

For $y = 4x^2 + 8x + 2$, find the vertex, axis, range, and both x-intercepts; sketch the graph.

Complete the square: $y = 4(x - (-1))^2 - 2$. Vertex $(-1, -2)$; axis $x = -1$; range $y \geq -2$. Solve $(x - (-1))^2 = 2/4$: $x = -1 \pm \sqrt{(2/4)}$.

06

Write $(7 + 5i)(13 - 5i)$ in a + bi form.

Distribute and use $i^2 = -1$: real part $91 + 25 = 116$; imaginary coefficient $65 - 35 = 30$. Result $116 + 30i$.