

Pre Cal Honors Chapter 1 and 2 Lecture Part 2

Lesson 204 | Precalculus | Functions, composition and piecewise rules • Graph transformations • Quadratic equations and graphs

<https://www.youtube.com/watch?v=1MDF4udnO-M>

Related review: exact coverage needs teacher confirmation.

Name: _____ Date: _____ Show your reasoning.

01

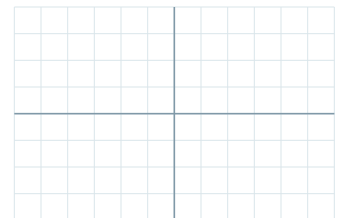
Let $f(x) = 3x + 2$ for $x < -5$, and $f(x) = x^2 + 5$ for $x \geq -5$. Find $f(-6)$, $f(-5)$, and $f(-4)$.

02

Describe the transformations from $y = \sqrt{x}$ to $y = -5\sqrt{x - (8)} + 4$. Give domain, range, and endpoint.

03

For $y = 5x^2 + 90x + 397$, find the vertex, axis, range, and both x-intercepts; sketch the graph.



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04

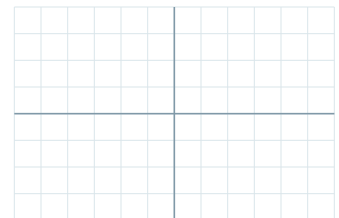
Let $f(x) = 6x + 9$ for $x < 1$, and $f(x) = x^2 + 2$ for $x \geq 1$. Find $f(0)$, $f(1)$, and $f(2)$.

05

Describe the transformations from $y = \sqrt{x}$ to $y = -6\sqrt{x - (5)} + 8$. Give domain, range, and endpoint.

06

For $y = 2x^2 - 16x + 27$, find the vertex, axis, range, and both x-intercepts; sketch the graph.



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01

Let $f(x) = 3x + 2$ for $x < -5$, and $f(x) = x^2 + 5$ for $x \geq -5$. Find $f(-6)$, $f(-5)$, and $f(-4)$.

Choose the rule from the input interval: $f(-6) = -16$; $f(-5) = 30$; $f(-4) = 21$. Equality uses the second rule.

02

Describe the transformations from $y = \sqrt{x}$ to $y = -5\sqrt{x - (8)} + 4$. Give domain, range, and endpoint.

Shift horizontally by 8, stretch vertically by 5, reflect across the x-axis, and move up 4. Domain $x \geq 8$; range $y \leq 4$; endpoint (8,4).

03

For $y = 5x^2 + 90x + 397$, find the vertex, axis, range, and both x-intercepts; sketch the graph.

Complete the square: $y = 5(x - (-9))^2 - 8$. Vertex (-9, -8); axis $x = -9$; range $y \geq -8$. Solve $(x - (-9))^2 = 8/5$: $x = -9 \pm \sqrt{8/5}$.

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04

Let $f(x) = 6x + 9$ for $x < 1$, and $f(x) = x^2 + 2$ for $x \geq 1$. Find $f(0)$, $f(1)$, and $f(2)$.

Choose the rule from the input interval: $f(0) = 9$; $f(1) = 3$; $f(2) = 6$. Equality uses the second rule.

05

Describe the transformations from $y = \sqrt{x}$ to $y = -6\sqrt{x - (5)} + 8$. Give domain, range, and endpoint.

Shift horizontally by 5, stretch vertically by 6, reflect across the x-axis, and move up 8. Domain $x \geq 5$; range $y \leq 8$; endpoint (5,8).

06

For $y = 2x^2 - 16x + 27$, find the vertex, axis, range, and both x-intercepts; sketch the graph.

Complete the square: $y = 2(x - (4))^2 - 5$. Vertex (4, -5); axis $x = 4$; range $y \geq -5$. Solve $(x-(4))^2 = 5/2$: $x = 4 \pm \sqrt{5/2}$.