

Pre Cal Honors Chapter 1 and 2 Lecture Part III

Lesson 205 | Precalculus | Functions, composition and piecewise rules • Graph transformations • Quadratic equations and graphs

<https://www.youtube.com/watch?v=cdXYL98TLkI>

Related review: exact coverage needs teacher confirmation.

Name: _____ Date: _____ Show your reasoning.

01

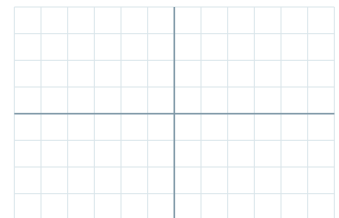
Let $f(x) = 11x + 7$ for $x < -9$, and $f(x) = x^2 + 3$ for $x \geq -9$. Find $f(-10)$, $f(-9)$, and $f(-8)$.

02

Describe the transformations from $y = \sqrt{x}$ to $y = -4\sqrt{x - (-3)} + 2$. Give domain, range, and endpoint.

03

For $y = 6x^2 - 12x + 2$, find the vertex, axis, range, and both x-intercepts; sketch the graph.



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04

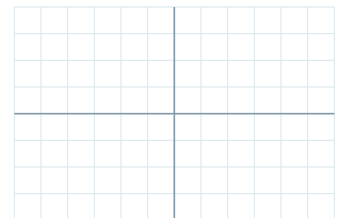
Let $f(x) = 10x + 6$ for $x < -3$, and $f(x) = x^2 + 9$ for $x \geq -3$. Find $f(-4)$, $f(-3)$, and $f(-2)$.

05

Describe the transformations from $y = \sqrt{x}$ to $y = -8\sqrt{x - (3)} + 6$. Give domain, range, and endpoint.

06

For $y = 9x^2 + 54x + 70$, find the vertex, axis, range, and both x-intercepts; sketch the graph.



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01

Let $f(x) = 11x + 7$ for $x < -9$, and $f(x) = x^2 + 3$ for $x \geq -9$. Find $f(-10)$, $f(-9)$, and $f(-8)$.

Choose the rule from the input interval: $f(-10) = -103$; $f(-9) = 84$; $f(-8) = 67$. Equality uses the second rule.

02

Describe the transformations from $y = \sqrt{x}$ to $y = -4\sqrt{x - (-3)} + 2$. Give domain, range, and endpoint.

Shift horizontally by -3, stretch vertically by 4, reflect across the x-axis, and move up 2. Domain $x \geq -3$; range $y \leq 2$; endpoint $(-3, 2)$.

03

For $y = 6x^2 - 12x + 2$, find the vertex, axis, range, and both x-intercepts; sketch the graph.

Complete the square: $y = 6(x - 1)^2 - 4$. Vertex $(1, -4)$; axis $x = 1$; range $y \geq -4$. Solve $(x - 1)^2 = 4/6$: $x = 1 \pm \sqrt{4/6}$.

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04

Let $f(x) = 10x + 6$ for $x < -3$, and $f(x) = x^2 + 9$ for $x \geq -3$. Find $f(-4)$, $f(-3)$, and $f(-2)$.

Choose the rule from the input interval: $f(-4) = -34$; $f(-3) = 18$; $f(-2) = 13$. Equality uses the second rule.

05

Describe the transformations from $y = \sqrt{x}$ to $y = -8\sqrt{x - (3)} + 6$. Give domain, range, and endpoint.

Shift horizontally by 3, stretch vertically by 8, reflect across the x-axis, and move up 6. Domain $x \geq 3$; range $y \leq 6$; endpoint $(3, 6)$.

06

For $y = 9x^2 + 54x + 70$, find the vertex, axis, range, and both x-intercepts; sketch the graph.

Complete the square: $y = 9(x - (-3))^2 - 11$. Vertex $(-3, -11)$; axis $x = -3$; range $y \geq -11$. Solve $(x - (-3))^2 = 11/9$: $x = -3 \pm \sqrt{11/9}$.