

Calculus Section 1 2 Parent Graphs

Lesson 253 | Calculus AB | Functions, composition and piecewise rules • Graph transformations

https://www.youtube.com/watch?v=_3XqLccPT4I

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

01

Let $f(x) = 2x + 13$ for $x < 7$, and $f(x) = x^2 + 10$ for $x \geq 7$. Find $f(6)$, $f(7)$, and $f(8)$.

02

Describe the transformations from $y = \sqrt{x}$ to $y = -14\sqrt{x - (-8)} + 4$. Give domain, range, and endpoint.

03

Let $f(x) = 7x + 8$ and $g(x) = x^2 - 9$. Find $(f \circ g)(x)$ and $(g \circ f)(5)$.

Calculus Section 1 2 Parent Graphs

Lesson 253 | Calculus AB | Functions, composition and piecewise rules • Graph transformations

https://www.youtube.com/watch?v=_3XqLccPT4I

Original practice aligned to the saved video title.

Name: _____ Date: _____ Show your reasoning.

04

Describe the transformations from $y = \sqrt{x}$ to $y = -9\sqrt{(x - (7))} + 11$. Give domain, range, and endpoint.

05

Let $f(x) = 12x + 3$ and $g(x) = x^2 - 5$. Find $(f \circ g)(x)$ and $(g \circ f)(6)$.

06

Describe the transformations from $y = \sqrt{x}$ to $y = -9\sqrt{(x - (-1))} + 8$. Give domain, range, and endpoint.

Calculus Section 1 2 Parent Graphs

Lesson 253 | Calculus AB | Functions, composition and piecewise rules • Graph transformations

https://www.youtube.com/watch?v=_3XqLccPT4I

Original practice aligned to the saved video title.

01

Let $f(x) = 2x + 13$ for $x < 7$, and $f(x) = x^2 + 10$ for $x \geq 7$. Find $f(6)$, $f(7)$, and $f(8)$.

Choose the rule from the input interval: $f(6) = 25$; $f(7) = 59$; $f(8) = 74$. Equality uses the second rule.

02

Describe the transformations from $y = \sqrt{x}$ to $y = -14\sqrt{x - (-8)} + 4$. Give domain, range, and endpoint.

Shift horizontally by -8, stretch vertically by 14, reflect across the x-axis, and move up 4. Domain $x \geq -8$; range $y \leq 4$; endpoint $(-8, 4)$.

03

Let $f(x) = 7x + 8$ and $g(x) = x^2 - 9$. Find $(f \circ g)(x)$ and $(g \circ f)(5)$.

$f(g(x)) = 7(x^2 - 9) + 8 = 7 \cdot x^2 - 55$. $f(5) = 43$, so $g(f(5)) = 1840$.

Calculus Section 1 2 Parent Graphs

Lesson 253 | Calculus AB | Functions, composition and piecewise rules • Graph transformations

https://www.youtube.com/watch?v=_3XqLccPT4I

Original practice aligned to the saved video title.

04

Describe the transformations from $y = \sqrt{x}$ to $y = -9\sqrt{(x - (7))} + 11$. Give domain, range, and endpoint.

Shift horizontally by 7, stretch vertically by 9, reflect across the x-axis, and move up 11. Domain $x \geq 7$; range $y \leq 11$; endpoint (7,11).

05

Let $f(x) = 12x + 3$ and $g(x) = x^2 - 5$. Find $(f \circ g)(x)$ and $(g \circ f)(6)$.

$f(g(x)) = 12(x^2 - 5) + 3 = 12 \cdot x^2 - 57$. $f(6) = 75$, so $g(f(6)) = 5620$.

06

Describe the transformations from $y = \sqrt{x}$ to $y = -9\sqrt{(x - (-1))} + 8$. Give domain, range, and endpoint.

Shift horizontally by -1, stretch vertically by 9, reflect across the x-axis, and move up 8. Domain $x \geq -1$; range $y \leq 8$; endpoint (-1,8).