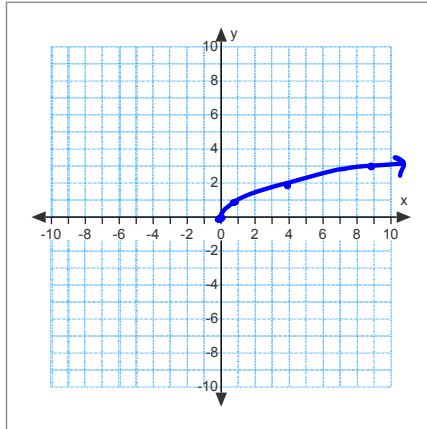


Unit 3: Polynomial, Radical, and Rational Functions

3.6 Transformations of Radical Functions

Graph $f(x) = \sqrt{x}$.



Recall: Transformations

Function Notation

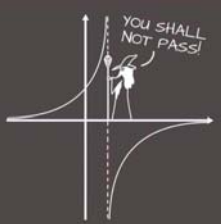
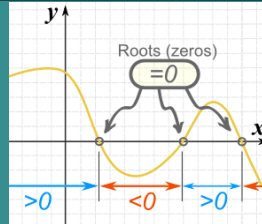
Equation

$$y = af[b(x-h)] + k$$

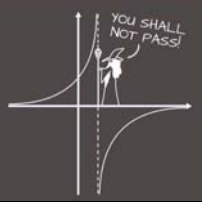
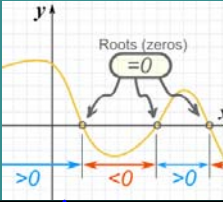
$$y = a\sqrt{b(x-h)} + k$$

Ex.) For each of the following, describe the transformations and state domain, range, x-int, and y-int.

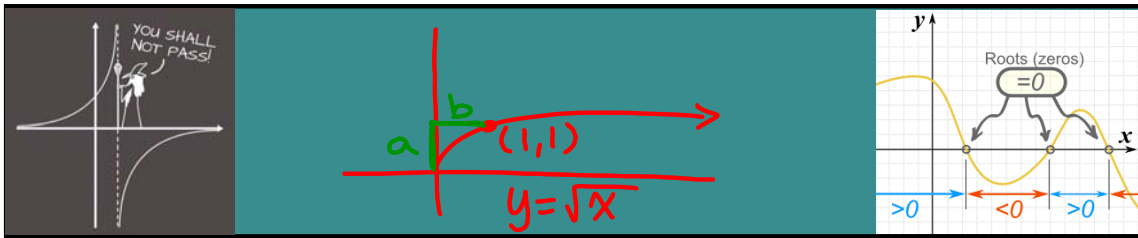
	<u>Domain</u>	<u>Range</u>	<u>X-int</u>	<u>Y-int</u>
a) $y = \sqrt{x}$	$x \geq 0$	$y \geq 0$	(0,0)	(0,0)
b) $y = \sqrt{\frac{1}{2}x}$ HS of 2	$x \geq 0$	$y \geq 0$	(0,0)	(0,0)

	<u>Domain</u>	<u>Range</u>	<u>X-int</u>	<u>Y-int</u>
c) $y = \sqrt{x+5}$ HT 5 left	$x+5 \geq 0$ $x \geq -5$	$y \geq 0$	$(-5, 0)$	$y = \sqrt{5+3}$ $(0, \sqrt{5})$
d) $y = \sqrt{x} + 3$ VT 3 up	$x \geq 0$	$y \geq 3$	none	$(0, 3)$
e) $y = -\sqrt{x}$ VR about x-axis	$x \geq 0$	$y \leq 0$	$(0, 0)$	$(0, 0)$

	<u>Domain</u>	<u>Range</u>	<u>X-int</u>	<u>Y-int</u>
f) $y = \sqrt{-x}$ HR about y-axis	$x \leq 0$	$y \geq 0$	$(0, 0)$	$(0, 0)$
g) $y = 2\sqrt{x-2} + 1$ VS of 2 HT 2 right VT 1 up	$x \geq 2$	$y \geq 1$	none	none
h) $y = \sqrt{3x+6}$ $y = \sqrt{3(x+2)}$ HS of 1/3 HT of 2 left	$x \geq -2$	$y \geq 0$	$(-2, 0)$ $0 = \sqrt{3x+6}$ $0 = 3x+6$	$(0, \sqrt{6})$ $y = \sqrt{3(0)+6}$ $y = \sqrt{6}$



Ex.) Given the graph, determine the radical function.

