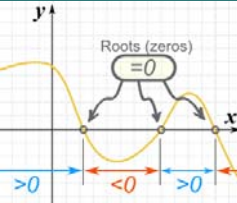


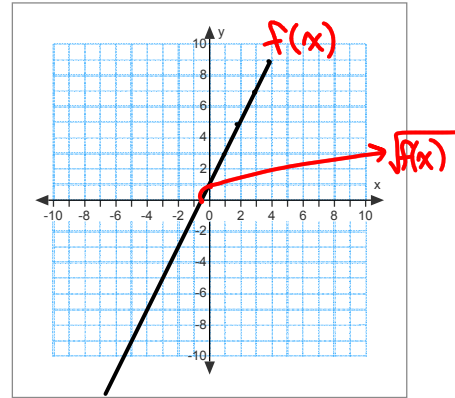
Unit 3: Polynomial, Radical,  
and Rational Functions



3.7 Graphing the Square Root of a Function

Graph  $f(x) = 2x + 1$  and  $\sqrt{f(x)}$   
 $0 = 2x + 1$

	$f(x)$	$\sqrt{f(x)}$
Domain:	$x \in \mathbb{R}$	$x \geq -1/2$
Range:	$y \in \mathbb{R}$	$y \geq 0$
X-int:	$(-1/2, 0)$	$(-1/2, 0)$
Y-int:	$(0, 1)$	$(0, 1)$
Invariant Points:	$(-1/2, 0) (0, 1)$	



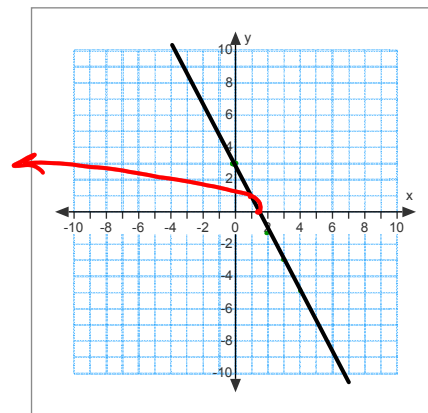


Unit 3: Polynomial, Radical,  
and Rational Functions



Graph  $f(x) = 3 - 2x$  and  $\sqrt{f(x)}$   $y = \sqrt{3-2x}$   
 $0 = 3 - 2x$   
 $2x = 3$   
 $x = 3/2$

	$f(x)$	$\sqrt{f(x)}$
Domain:	$x \in \mathbb{R}$	$x \leq 3/2$
Range:	$y \in \mathbb{R}$	$y \geq 0$
X-int:	$(3/2, 0)$	$(3/2, 0)$
Y-int:	$(0, 3)$	$(0, \sqrt{3})$
Invariant Points:	$(3/2, 0) (1, 1)$	



$1 = 3 - 2x$   
 $-2 = -2x$   
 $-2 / -2 = -2x / -2$   $x = 1$

Graph  $f(x) = x^2 - 4$  and  $\sqrt{f(x)}$

	$f(x)$	$\sqrt{f(x)}$
Domain:	$x \in \mathbb{R}$	$(-\infty, -2] \cup [2, \infty)$
Range:	$y \geq -4$	$y \geq 0$
X-int:	$(-2, 0), (2, 0)$	$(-2, 0), (2, 0)$
Y-int:	$(0, -4)$	none
Invariant	$(-2, 0), (2, 0)$	
Points:	$(-\sqrt{5}, 1), (\sqrt{5}, 1)$	

$\cup$  - union of sets

$$f(x) = \sqrt{x^2 - 4}$$

$$1 = \sqrt{x^2 - 4}$$

$$1 = x^2 - 4$$

$$5 = x^2$$

$$x = \pm\sqrt{5}$$

Graph  $f(x) = x^2 + 5$  and  $\sqrt{f(x)}$

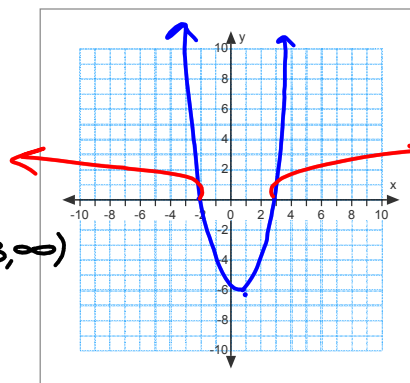
$$y = \sqrt{x^2 + 5}$$

	$f(x)$	$\sqrt{f(x)}$
Domain:	$x \in \mathbb{R}$	$x \in \mathbb{R}$
Range:	$y \geq 5$	$y \geq \sqrt{5}$
X-int:	none	none
Y-int:	$(0, 5)$	$(0, \sqrt{5})$
Invariant	none	
Points:		



Graph  $f(x) = x^2 - x - 6$  and  $\sqrt{f(x)}$   
 $(x-3)(x+2)$

	$f(x)$	$\sqrt{f(x)}$
Domain:	$x \in \mathbb{R}$	$(-\infty, -2] \cup [3, \infty)$
Range:	$y \geq -6.25$	$y \geq 0$
X-int:	$(-2, 0)(3, 0)$	$(-2, 0)(3, 0)$
Y-int:	$(0, -6)$	none
Invariant Points:	$(-2, 0)(3, 0)$	



Pg. 86 # 3, 5, 6, 8, 10.