Sec. 10.5 Graphing Square Root Functions

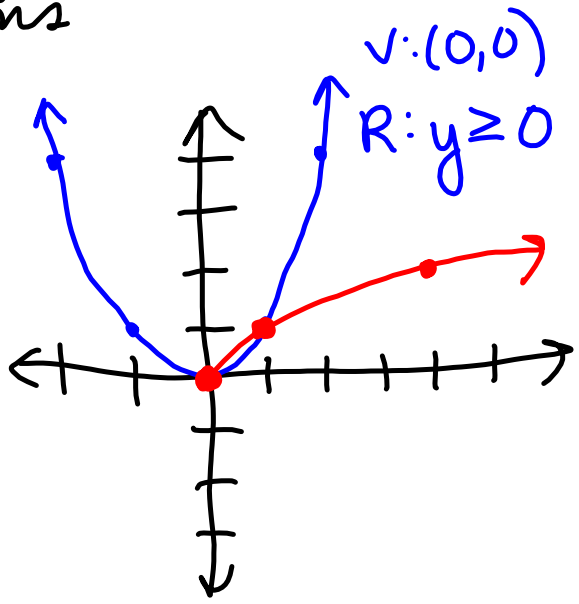
$y = x^2$

$y = \sqrt{x}$

x	y
0	0
1	1
4	2

Domain: $x \geq 0$

$x \geq 0$



Problem 1: What is the domain of the function?

a. $\sqrt{2x+1}$

$(-\frac{1}{2}, 0)$ S.P.

$2x + 1 \geq 0$

$-1 \quad -1$

$\frac{2x}{2} \geq \frac{-1}{2}$

D: $x \geq -\frac{1}{2}$

b. $\sqrt{-2x+5}$

$(\frac{5}{2}, 0)$

$-2x + 5 \geq 0$

$-5 \quad -5$

$\frac{-2x}{-2} \leq \frac{-5}{-2}$

$x \leq \frac{5}{2}$

Problem 2:

Graph the function $d = \sqrt{1.5h}$ which gives the distance in miles to a horizon when h is the height of the viewer's eyes above the ground in feet. When will the distance the viewer can see be greater than 10 mi?

$d = \sqrt{1.5h}$

x	y
0	0
1	1.2
10	3.9
30	6.7
60	9.5
65	9.9
70	10.2
67	10.0 ft
66	9.9

D: $\frac{1.5h}{1.5} \geq \frac{0}{1.5}$

$h \geq 0$

$\sqrt{1.5} = 1.2$

$\sqrt{1.5 \cdot 10} = \sqrt{15}$

$\sqrt{1.5 \cdot 30} = \sqrt{45}$

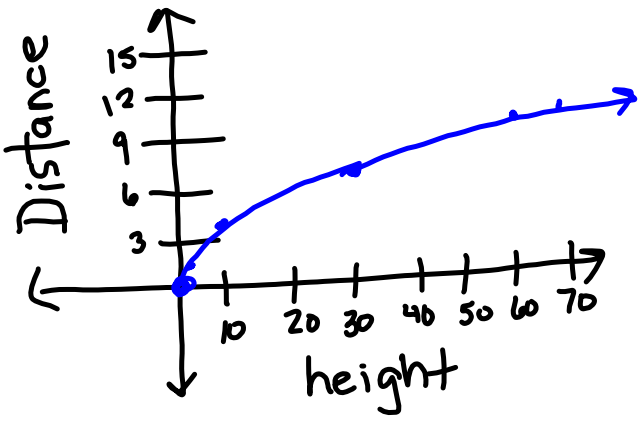
$\sqrt{1.5 \cdot 60} = \sqrt{90}$

$\sqrt{1.5 \cdot 65} = \sqrt{97.5}$ ←

$\sqrt{1.5 \cdot 70} = \sqrt{105}$

$\sqrt{1.5 \cdot 67} = \sqrt{100.5}$

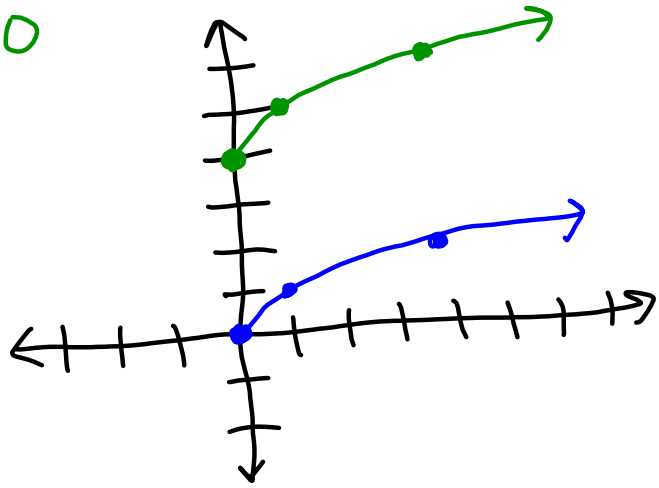
$\sqrt{1.5 \cdot 66} \approx \sqrt{99}$



approx. 67 ft.

Problem 3:
What is the graph of $y = \sqrt{x} + 4$?

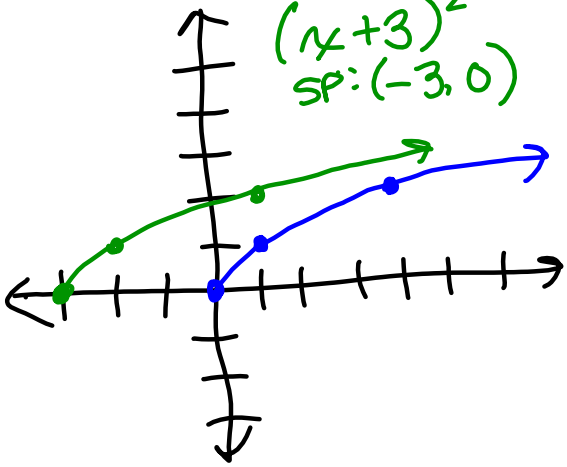
x	y	$x \geq 0$
0	4	$\sqrt{0}+4$
1	5	$\sqrt{1}+4$
4	6	$\sqrt{4}+4$
		2



Problem 4:
What is the graph of $y = \sqrt{x+3}$?

D: $x+3 \geq 0$
$-3 \quad -3$
$x \geq -3$
$(-3, 0)$

$(x+3)^2$
SP: $(-3, 0)$



Problem 5:

$y = \sqrt{x-2} + 1$

SP: $(2, 1)$

D: $x-2 \geq 0$
$+2 \quad +2$
$x \geq 2$
$(2, 1)$