

Section 6.3 Square Root Functions and Inequalities

Name Key

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Write the domain and range of each function. Check your answer by graphing the function on your calculator.

1. $D = \{x x \geq 0\}$ $R = \{y y \geq 0\}$	2. $D = \{x x \geq 5\}$ $R = \{y y \geq 0\}$	3. $D = \{x x \geq -8\}$ $R = \{y y \geq -2\}$
4. $D = \{x x \geq 0\}$ $R = \{y y \geq -2\}$	5. $D = \{x x \geq 1\}$ $R = \{y y \geq 0\}$	6. $D = \{x x \geq -4\}$ $R = \{y y \geq -1\}$
7. $D = \{x x \geq 1\}$ $R = \{y y \leq 5\}$	8. $v = 356\sqrt{d}$ $v \rightarrow$ speed $d \rightarrow$ depth $145 = 356\sqrt{d}$ $d = 0.165 \text{ Km}$ 0.17 Km depth	

Write the inequality and then graph. Check with your calculator.

<p>9. $f(x) \geq \sqrt{x} + 4$</p> <table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>0</td><td>4</td></tr> <tr><td>4</td><td>6</td></tr> <tr><td>9</td><td>7</td></tr> <tr><td>16</td><td>8</td></tr> </tbody> </table> <p>$0 \geq 0 + 4$ No Shade away from (0,0)</p>	x	y	0	4	4	6	9	7	16	8	<p>10. $f(x) \leq \sqrt{x-6} + 2$</p> <table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>6</td><td>2</td></tr> <tr><td>7</td><td>3</td></tr> <tr><td>10</td><td>4</td></tr> </tbody> </table> <p>use (7,0) $0 \leq \sqrt{7-6} + 3$ $0 < 4$ Yes shade over (7,0)</p>	x	y	6	2	7	3	10	4
x	y																		
0	4																		
4	6																		
9	7																		
16	8																		
x	y																		
6	2																		
7	3																		
10	4																		

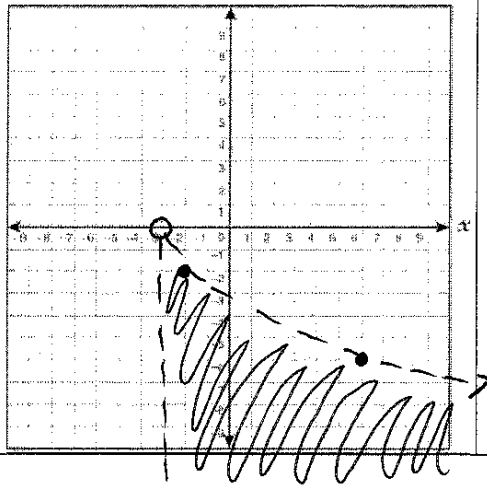
Domain = $\{x | x \geq 0\}$

Range = $\{y | y \geq 4\}$

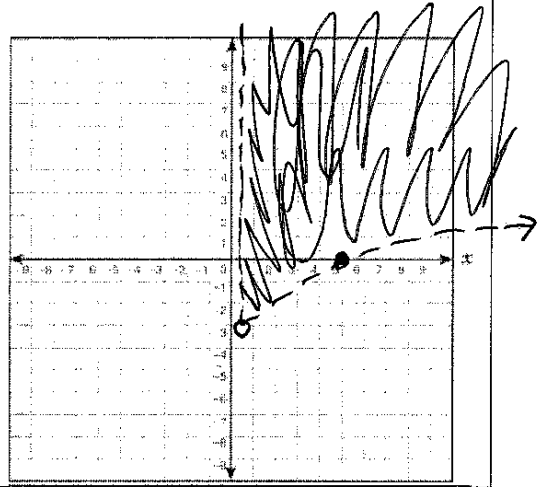
Domain = $\{x | x \geq 6\}$

Range = $\{y | y \geq 2\}$

11.



12.



29.

1936 ft

30.

a) $90 = \sqrt{100 + 64h}$

b) 125 ft

40.

a) ≈ 21.2 mphb) ≈ 68 ft

c) No; it is NOT a linear function. The skid will be 4 times as long.

Write the square root function for each 41-43. The value of a in each is 1.

41.

$$y = \sqrt{x-4} - 6$$

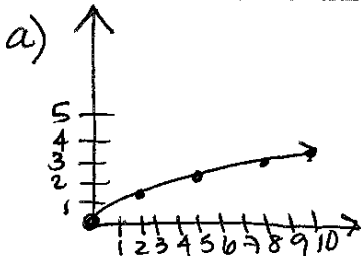
42.

$$y = \sqrt{x+2} + 4$$

43.

$$y = -\sqrt{x+6} - 6$$

45



b) 1.57 sec
2.48 sec
3.14 sec