



Problem 1 – The General Radical Function

Examine the graph on page 1.2.

1. What is the domain and range of the function?

2. Why does the graph “stop” at the origin?

3. When is the following statement true?

The graph of the square root function is completely in the first quadrant.

Sometimes

Always

Never

Problem 2 – Transformations

On page 2.2, change the values of the variables a , h , and k and observe the effects of the changes on the graph.

4. What does the graph look like when all three variables equal zero? Why?

5. Based on your exploration, when is the following statement true?

The graph of the square root function is completely in the first quadrant.

Sometimes

Always

Never

Use page 2.2 answer Questions 6–16

6. Find two functions whose domain is $x \geq 3$.

7. What is the domain of the function $f(x) = 4\sqrt{x+2} - 3$? Check using the graph.

8. Changing which variable will create a horizontal shift?



9. Find two functions whose range is $y \geq -2$.
10. What is the range of the function $f(x) = 4\sqrt{x+2} - 3$? Check using the graph.
11. Changing which variable will create a vertical shift?
12. What is the difference between the graphs of $f(x) = 4\sqrt{x+2} - 3$ and $g(x) = -4\sqrt{x+2} - 3$?
13. What is the difference between the graphs of $f(x) = 4\sqrt{x+2} - 3$ and $g(x) = 2\sqrt{x+2} - 3$?
14. What effect does the variable a have on the graph?
15. What is the domain of the function using the general equation $y = \sqrt{x-h} + k$?
16. What is the range of the function using the general equation $y = \sqrt{x-h} + k$?

Extension – Cube Root Functions

Examine the graph on page 3.1.

17. What is the domain and range of the function in terms of the general equation?
18. Describe the effects on the graph of changing each variable.