

Name:

Date:

Period:

Graph questions 1 – 6 on a **separate piece of graph paper**. Make sure to include the starting point & the table of values on your graph paper.

- Describe the domain of each function using **set notation**.
- Describe the range of each function using **set notation**.
- Compare the graph to the graph of $f(x) = \sqrt{x}$ & describe the transformation on your graph paper.

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

2. $f(x) = \sqrt{x + 2}$

3. $g(x) = \sqrt{x - 1}$

4. $g(x) = \sqrt{x} - 1$

5. $g(x) = 2\sqrt{x}$

6. $g(x) = -2\sqrt{x}$

In Exercises 7 – 9, describe the domain of the function using **interval notation**. (Finding the starting point helps)

7. $y = 4\sqrt{-x}$

8. $y = \sqrt{x - 3}$

9. $y = \sqrt{\frac{1}{3}x} + 4$

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In Exercises 10 – 20, compare the given equation to the parent function and describe the transformation using bullet points.

10. $g(x) = \sqrt[3]{x} + 2$

11. $r(x) = \frac{1}{2}\sqrt[3]{x + 1} + 4$

12. $h(x) = -\sqrt{x + 4} - 4$

13. $q(x) = -4\sqrt[3]{x + 2} + 3$

14. $h(x) = \sqrt[3]{x - 3}$

15. $j(x) = 4\sqrt[3]{x}$

16. $h(x) = \frac{1}{2}\sqrt{x + 2} - 2$

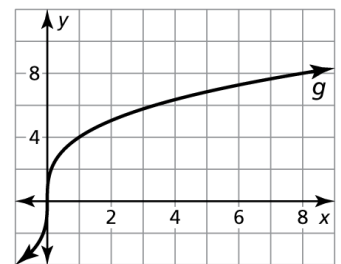
17. $h(x) = 2\sqrt{x - 3} + 1$

18. $r(x) = -\sqrt[3]{x - 3}$

19. $s(x) = 2\sqrt[3]{x} - 1$

20. $p(x) = \sqrt[3]{x - 1} + 1$

21. The graph of cube root function g is shown. Compare the average rate of change of g to the average rate of change of $h(x) = 2\sqrt[3]{x}$ over the interval $x = 0$ to $x = 8$.



22. The edge length s of a regular tetrahedron is approximately given by $s = \sqrt[3]{8.49V}$ where V is the volume of the tetrahedron. Estimate the volume of a regular tetrahedron with an edge length of 24 inches.

23. The model $S(d) = \sqrt{30df}$ represents the speed S (in miles per hour) of a car before it skids to a stop, where f is the drag factor of the road surface and d is the length (in feet) of the skid marks. The drag factor of Road Surface C is 0.8. The graph shows the speed of the car on Road Surface D. Compare the speeds by finding and interpreting their average rates of change over the interval $d = 0$ to $d = 20$. (Average Rate of Change is slope)

