

Name Key

Date _____ Pd _____

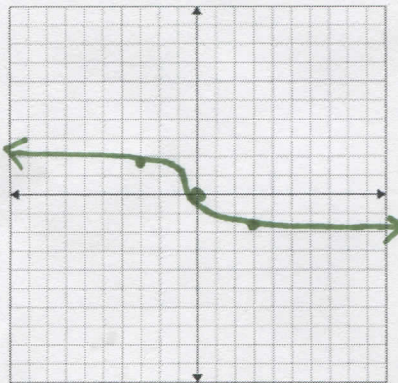
5.3 Graphing Radical Functions CYU

Use when you get it right all by yourself
S Use when you did it all by yourself, but made a silly mistake
H Use when you could do it alone with a little help from teacher or peer
G Use when you completed the problem in a group
X Use when a question was attempted but wrong (get help)
N Use when a question was not even attempted

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Graphing radicals	1	2	3
Domain and range in interval notation	1 - 3		
Describing radical transformations	4	5	6, 7
Writing rules for transformations	9	10	8, 11, 12

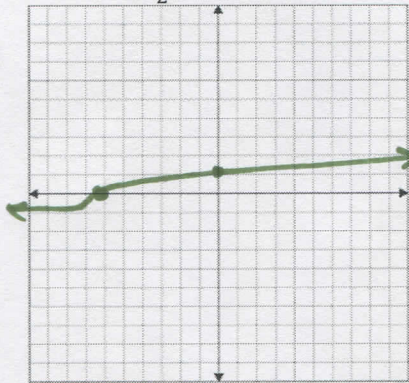
Graph the function. Identify the domain and range in interval notation of the function.

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



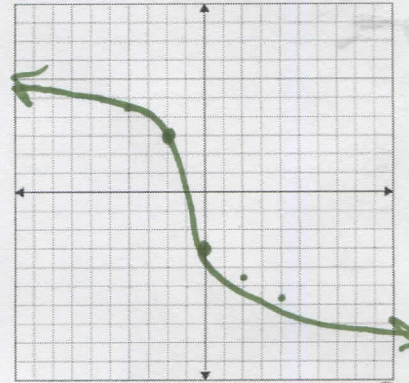
D: $(-\infty, \infty)$ R: $(-\infty, \infty)$

2. $f(x) = \frac{1}{2}\sqrt[3]{x+6}$



D: $(-\infty, \infty)$ R: $(-\infty, \infty)$

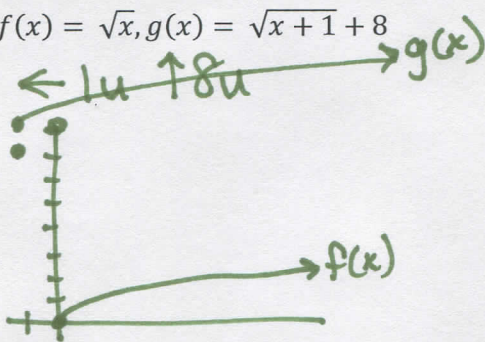
3. $g(x) = -3(x+1)^{\frac{1}{3}}$



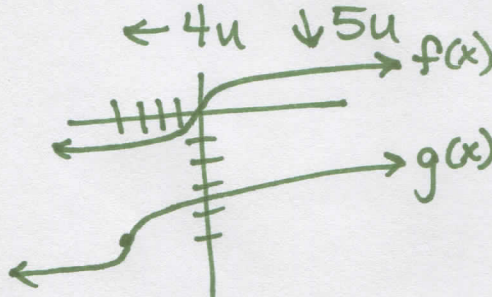
D: $(-\infty, \infty)$ R: $(-\infty, \infty)$

Describe the transformation of f represented by g . Then graph each function.

4. $f(x) = \sqrt{x}, g(x) = \sqrt{x+1} + 8$

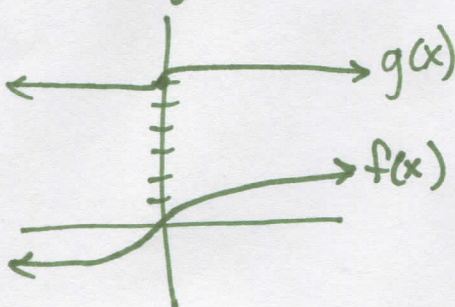


5. $f(x) = \sqrt[3]{x}, g(x) = \sqrt[3]{x+4} - 5$



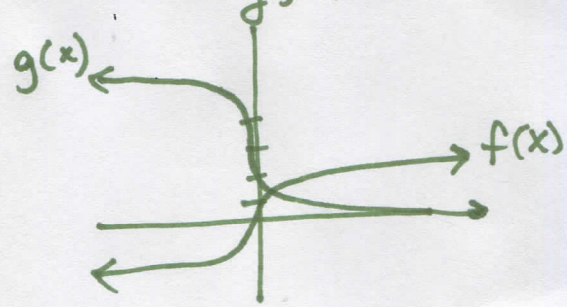
6. $f(x) = x^{\frac{1}{3}}, g(x) = \frac{1}{3}x^{\frac{1}{3}} + 6$

VC $\frac{1}{3}$; $\uparrow 6u$

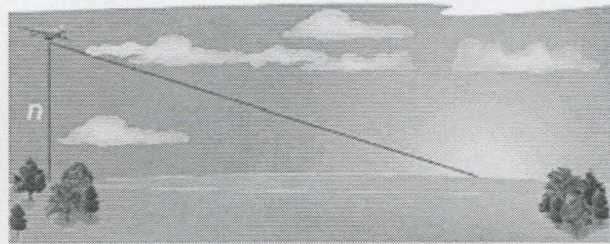


7. $f(x) = \sqrt[5]{x}, g(x) = \sqrt[5]{-32x} + 3$

HC $\frac{1}{32}$; R_y; $\uparrow 3u$



8. **PROBLEM SOLVING** The distance (in miles) a pilot can see to the horizon can be approximated by $E(n) = 1.22\sqrt{n}$, where n is the plane's altitude (in feet above sea level) on Earth. The function $M(n) = 0.75E(n)$ approximates the distance a pilot can see to the horizon n feet above the surface of Mars. Write a rule for M . What is the distance a pilot can see to the horizon from an altitude of 10,000 feet above Mars?



$$M(n) = 0.915\sqrt{n}$$

$$\approx 91.5 \text{ mi}$$

Write a rule for g described by the transformations of the graph of f .

9. Let g be a vertical stretch by a factor of 2, followed by a translation 2 units up of the graph of $f(x) = \sqrt{x} + 3$.

$$g(x) = 2\sqrt{x} + 8$$

10. Let g be a reflection over the y -axis, followed by a translation 1 unit right of the graph of $f(x) = 2\sqrt[3]{x-1}$.

$$g(x) = 2\sqrt[3]{-x} + 1$$

11. Let g be a horizontal compression by a factor of $\frac{2}{3}$, followed by a translation 4 units left of the graph of $f(x) = \sqrt{6x}$.

$$g(x) = \sqrt{9x + 36}$$

12. Let g be a translation 1 unit down and 5 units right, followed by a reflection over the x -axis of the graph of $f(x) = -\frac{1}{2}\sqrt[4]{x} + \frac{3}{2}$.

$$g(x) = \frac{1}{2}\sqrt[4]{x-5} - \frac{1}{2}$$

CYU Reflection: How far can you go: basic, intermediate, or advanced?

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.

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1	2	3	4	5	6	7	8
Basic		Intermediate			Advanced		Solved ALL!

