

UNIT 3 • RADICAL AND RATIONAL FUNCTIONS

F–IF.7*, F–IF.9, F–BF.3

Lesson 3.5: Radical Functions**Practice 3.5: Radical Functions****A**

For problems 1–4, graph each function and describe its key features. Include domain and range; intercepts; intervals where the function is increasing, decreasing, positive, or negative; and the function's end behavior.

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

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

3. $h(x) = \frac{3}{2}\sqrt{x-2} + 4$

4. $k(x) = -\sqrt{1-2x} + 1$

For problems 5 and 6, find an equation $g(x)$ for the following transformations of $f(x) = \sqrt{x}$. Then graph the equation.

5. Reflect across the y -axis, and translate left 3 units and up 4 units.

6. $f(2x + 3) - 1$

continued

Name:

Date:

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F–IF.7*, F–IF.9, F–BF.3

Lesson 3.5: Radical Functions

Use the given information to complete problems 7–10.

Danai and Upenyu are running an experiment. Danai thinks the function $f(x) = 3\sqrt{x}$ fits the data in the experiment. The actual data is shown in the following table.

x	y	x	y	x	y	x	y
1	0.98	6	7.19	11	9.99	16	12.23
2	3.22	7	7.48	12	10.65	17	12.02
3	4.72	8	8.26	13	11.01	18	12.43
4	5.98	9	8.77	14	11.25	19	12.74
5	6.51	10	9.21	15	11.96	20	12.99

7. Graph Danai’s function on the same plot as the actual data. Is the function a good fit for the data? Why or why not?

8. Describe at least one way to make the function a better fit for the data, and sketch a new function $g(x)$ to fit the data.

continued

Name:

Date:

UNIT 3 • RADICAL AND RATIONAL FUNCTIONS

F-IF.7*, F-IF.9, F-BF.3

Lesson 3.5: Radical Functions

Danai and Upenyu repeat the experiment. The new data is given in the following table. Use the table to complete problems 9 and 10.

x	y	x	y	x	y	x	y
1	1.00	6	7.19	11	9.99	16	12.24
2	3.34	7	8.00	12	10.44	17	12.66
3	4.69	8	8.21	13	10.79	18	13.02
4	5.50	9	8.88	14	11.11	19	13.44
5	6.42	10	9.49	15	11.90	20	13.59

9. Plot the new data on the same graph as the old data. Does $g(x)$ fit the new data well?

10. Describe at least one way to make the function a better fit for the new data, and sketch a new function $h(x)$ to fit the new data.