

LESSON
1-2

Practice B

Introduction to Parent Functions

Identify the parent function for h from its function rule. Then graph h on your calculator and describe what transformation of the parent function it represents.

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

2. $h(x) = (x-4)^3$

3. $h(x) = 4x^2$

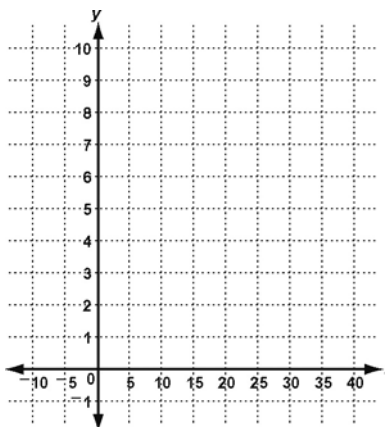
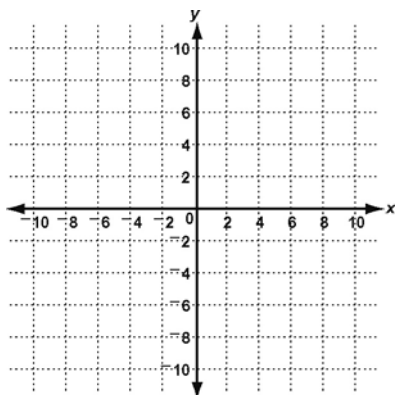
Graph the data from the table. Describe the parent function and the transformation that best approximates the data set.

4.

x	-2	-1	0	1	2
y	-9	-2	-1	0	7

5.

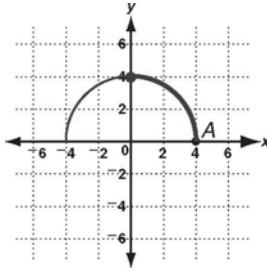
x	0	2	8	18	32
y	0	1	2	3	4



6. Compare the domain and the range for the parent quadratic function to the domain and the range for the parent linear function.

7. Compare the domain and the range for the parent square-root function to the domain and the range for the parent cubic function.

Challenge



1. $(4, -2), (0, -2), (-1, -6), (3, -6)$
2. $(x, y) \rightarrow (y, -x)$ 3. $(x, y) \rightarrow (-y, x)$
4. $(0, 4), (0, 0), (4, -1), (4, 3)$
5. $(-4, 0), (0, 0), (1, 4), (-3, 4)$
6. $(-2, 0), (2, 0), (3, 4), (-1, 4)$

Problem Solving

1. \$120; \$160; \$220; \$240
2. \$40 per hour 3. \$20 per hour
4. Translated down 15 units
5. Possible answers: A line would go from $(0, 160)$ to $(3, 160)$ with no open circle; the range would not include any numbers less than 160.
6. He would have to pay more to rent the Art Center.
7. A 8. J

Reading Strategies

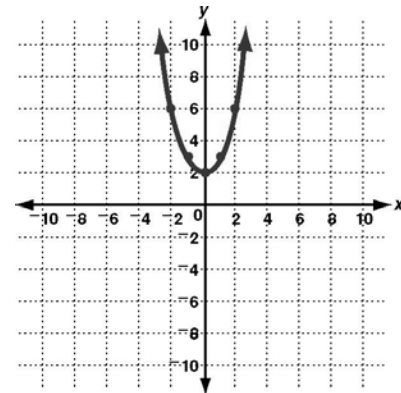
1. The shape of the figure does not change, only the position changes.
2. Add 3 to each x -coordinate; y -coordinates do not change.
3. x -coordinates do not change; subtract 5 from each y -coordinate.
4. x -coordinates do not change; multiply each y -coordinate by -1 .
5. Subtract 4 from each x -coordinate and add 2 to each y -coordinate.

1-2 INTRODUCTION TO PARENT FUNCTIONS

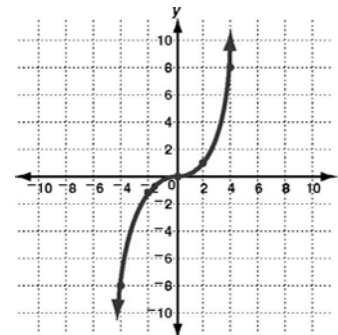
Practice A

1. Quadratic 2. Cubic
3. Linear

4. Quadratic; translation left
5. Linear; translation down
6. Cubic; reflection across the y -axis
7. Quadratic; translation 2 units up

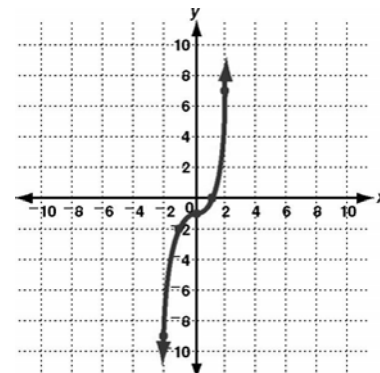


8. Cubic; horizontal stretch by factor of 2

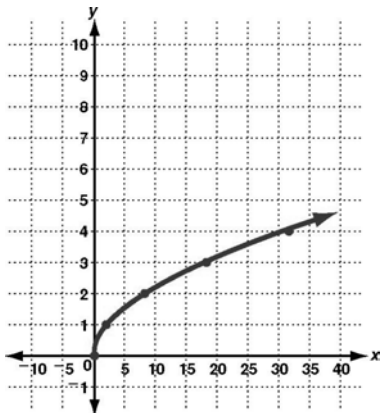


Practice B

1. Square root; translation 4 units left
2. Cubic; translation 4 units right
3. Quadratic; horizontal compression
4. Cubic; translation 1 unit down



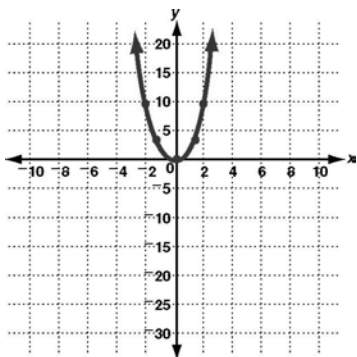
5. Square root; vertical compression



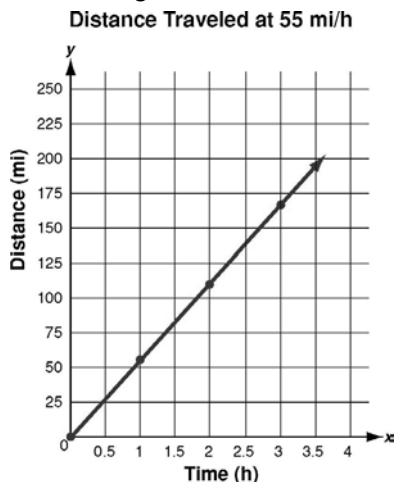
- The domain is the same for both functions, all real numbers. The range for the linear function is all real numbers, but the range for the quadratic function is all real numbers greater than or equal to 0.
- The domain and the range for the cubic function are all real numbers. The domain and the range for the square-root function are all real numbers greater than or equal to 0.

Practice C

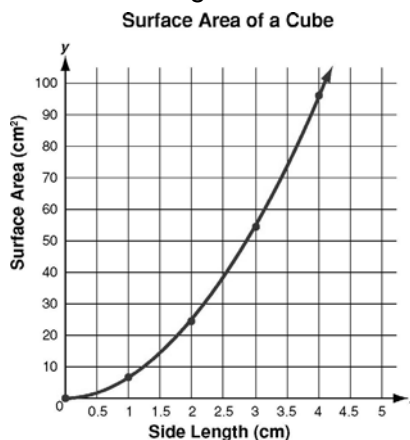
- Domain: positive real numbers; Range: negative real numbers; reflection across the x -axis and a vertical stretch
- Domain: all real numbers; Range: all real numbers; translation 2 units right and a horizontal stretch
- Quadratic; translation 1 unit up and a horizontal compression



4. Linear; domain and range are all real numbers greater than 0.



5. Quadratic; domain and range are all real numbers greater than 0.



Reteach

- Quadratic; reflection across x -axis
- Square root; horizontal translation left 2 units
- Quadratic function $f(x) = x^2$; vertical shift down 3 units

