

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

Parent: Square Root

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

Parent: Cubic

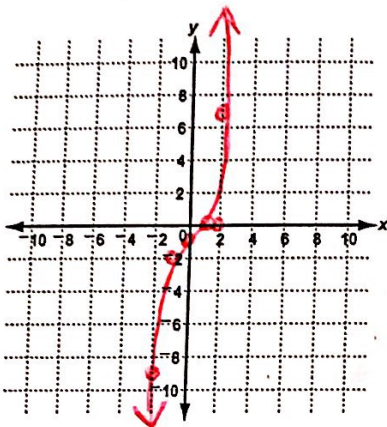
3. $h(x) = 4x^2$

Parent: Quadratic

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

4.

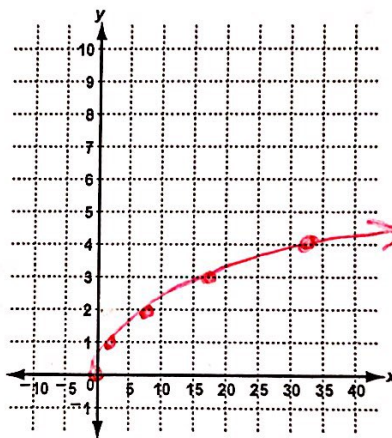
x	-2	-1	0	1	2
y	-9	-2	-1	0	7



Cubic

5.

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



Square Root

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

The quadratic function and linear function share the same domain of $(-\infty, \infty)$. However, the linear function has a range of $(-\infty, \infty)$ while the quadratic cannot include negative numbers so is limited to $[0, \infty)$.

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

The cubic function has a domain of $(-\infty, \infty)$ while the square-root function only has a domain of $[0, \infty)$. Similarly, the ranges of each differ as a cubic function will be $(-\infty, \infty)$ while a square-root function will be $[0, \infty)$ in order for it to be a function.

Practice C

Introduction to Parent Functions

Graph each function on a graphing calculator. Identify the domain and range of the function, and describe the transformation from its parent function.

1. $g(x) = -\sqrt{4x}$ Domain: $[0, \infty)$ Range: $[0, -\infty)$

Parent: Square Root

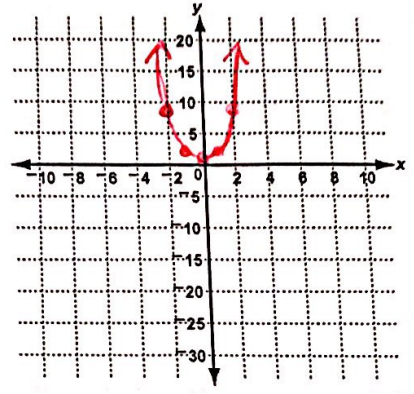
2. $g(x) = \frac{1}{2}(x-2)^3$ Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$

Parent: Cubic

Graph the function. Identify the parent function that best describes the set of points, and describe the transformation from the parent function.

3. $\{(-2, 9), (-1, 3), (0, 1), (1, 3), (2, 9)\}$

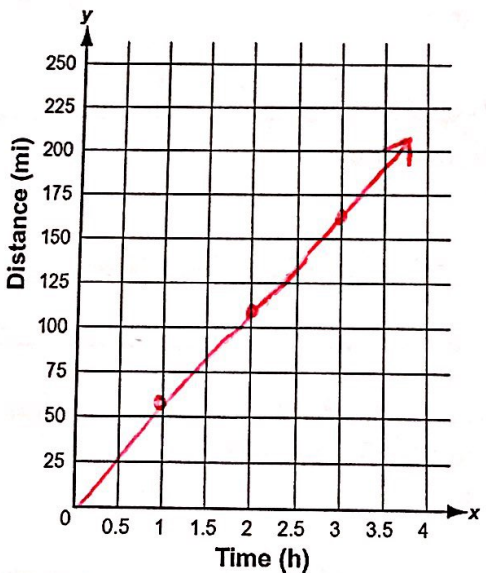
Parent: Quadratic



Sketch a graph for each situation and identify the related parent function. Then identify a reasonable domain and range for the function.

4. distance traveled in t hours at 55 mi/h

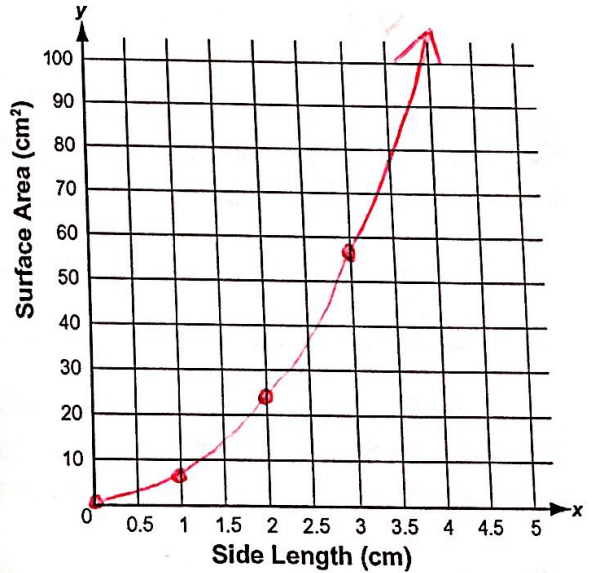
Distance Traveled at 55 mi/h



Parent: Linear
Domain: $[0, \infty)$ Range: $[0, \infty)$

5. surface area of a cube with side length c

Surface Area of a Cube



Parent: Cubic
Domain: $(0, \infty)$ Range: $(0, \infty)$