

Exercise 76

For the following exercises, describe how the formula is a transformation of a toolkit function. Then sketch a graph of the transformation.

$$q(x) = \left(\frac{1}{4}x\right)^3 + 1$$

Solution

Start with the parent function.

$$x^3$$

Replacing x with $(1/4)x$ horizontally stretches the graph by a factor of 4.

$$\left(\frac{1}{4}x\right)^3$$

Adding 1 to the function shifts the graph up by 1 unit.

$$\left(\frac{1}{4}x\right)^3 + 1$$

