

1.5 Dilations

non-rigid transformation

Expansion or Compression
→ stretch → shrink

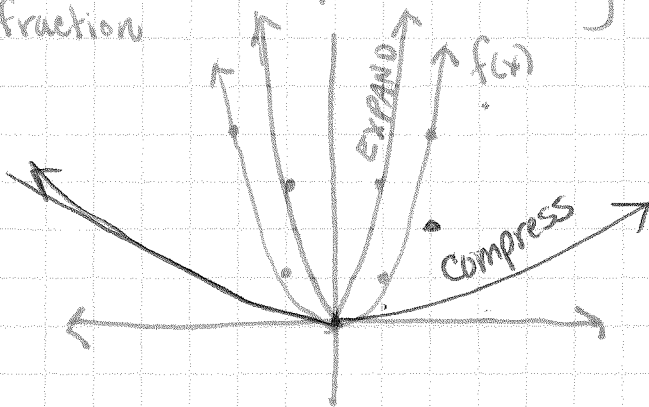
Vertical Dilation

$$a > 0 \quad g(x) = a \cdot f(x)$$

$a > 1$ Expand Vertically ← --- →

$0 < a < 1$ Compress Vertically ← --- →

fraction



Horizontal Dilation

$$g(x) = f(ax)$$

Compress horizontally

expanding horizontally

$$f(ax) = \frac{1}{a} f(x)$$

↑
horiz dilation factor

Piecewise Graphing

* find your "pieces" or intervals on x

$$f(x) \begin{cases} x-5 & \text{if } x \leq 0 \\ x^3 & \text{if } 0 < x \leq 2 \\ \frac{2}{x} & \text{if } x > 2 \end{cases}$$

