TRANSFORMATIONS

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RIGID
leave the size & shape of a graph unchanged

Horizontal
- $y = f(x-c)$
  translation to the right by c units
- $y = f(x+c)$
  translation to the left by c units

Vertical
- $y = f(x)+c$
  translation up by c units
- $y = f(x)-c$
  translation down by c units

Absolute Value

$f(|x|)$
* all x values become (+)
- keep the right side
- delete left side, reflect right side across y-axis

$|f(x)|$
* all y values become (+)
- keep the top & reflect the bottom across x-axis

REFLECTIONS
- $y = -f(x)$
  reflection across x-axis
- $y = f(-x)$
  reflection across y-axis

NON-RIGID
usually distort the shape of a graph

▷ Horizontal stretches/shrinks
$y = f\left(\frac{x}{c}\right)$
- a stretch by a factor of c if $c > 1$
- a shrink by a factor of c if $c < 1$

▷ Vertical stretches/shrinks
$y = c \cdot f(x)$
- a stretch by a factor of c if $c > 1$
- a shrink by a factor of c if $c < 1$