

## SHIFTING

- $y = f(x) + k$  is the equation for the graph of  $y = f(x)$  shifted <sup>(1)</sup> by  $k$  units.
  - If  $h$  is positive, the graph is shifted <sup>(2)</sup>.
  - If  $h$  is negative, the graph is shifted <sup>(3)</sup>.
- $y = f(x + h)$  is the equation for the graph of  $y = f(x)$  shifted <sup>(4)</sup> by  $h$  units.
  - If  $h$  is positive, the graph is shifted to the <sup>(5)</sup>.
  - If  $h$  is negative, the graph is shifted to the <sup>(6)</sup>.

## SCALING

- $y = cf(x)$  is the equation for the graph of  $y = f(x)$  scaled <sup>(7)</sup> by  $c$  units.
  - If  $c > 1$ , the graph is <sup>(8)</sup>.
  - If  $c < 1$ , the graph is <sup>(9)</sup>.
- $y = f(cx)$  is the equation for the graph of  $y = f(x)$  scaled <sup>(10)</sup> by  $c$  units.
  - If  $c > 1$ , the graph is <sup>(11)</sup>.
  - If  $c < 1$ , the graph is <sup>(12)</sup>.

## REFLECTING

- $y = -f(x)$  is the equation for the graph of  $y = f(x)$  reflected across the <sup>(13)</sup>.
- $y = f(-x)$  is the equation for the graph of  $y = f(x)$  reflected across the <sup>(14)</sup>.