

## Summary

## The Reciprocal Function Family

Parent function:

$$y = \frac{1}{x}, x \neq 0$$

Stretch ( $|a| > 1$ )

Shrink ( $0 < |a| < 1$ )

Reflection ( $a < 0$ ) in  $x$ -axis

$$y = \frac{a}{x}$$

Translation (horizontal by  $h$ ; vertical by  $k$ ) with  
vertical asymptote  $x = h$ , horizontal asymptote  $y = k$ :

$$y = \frac{1}{x - h} + k$$

Combined:

$$y = \frac{a}{x - h} + k$$