2. **Transformation**

The transformation of any given function in its vertex form

where $|a|$

Example 3

Define the transformation of rational function $\dfrac{2}{3}\quad\dfrac{3}{2}$

We have $\quad\overline{\dfrac{-\quad-\quad\overline{-\quad-\quad-\;-}}{-\qquad\qquad-}}\quad\dfrac{2}{3}\quad\dfrac{-}{-}$

(move up 2/3, left 2/3, stretch by 13/9 and flip over x-axis)

Back to the question, function $\dfrac{2}{1}$ can be rewritten as $\dfrac{2}{1}\quad 1\quad\dfrac{3}{1}$. It has moved up 1, right 1 and stretch by 3 times

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3. <u>Inverse</u>

Derive from vertex form

where $|a|$ indicate a quantity of vertical dilate, $|b|$ horizontal dilate

k indicates quantity of vertical translate, h horizontal translate
$a < 0$ horizontal reflection and $b < 0$ vertical reflection

The inverse function can be found by just doing some switching $\quad b$ and $\quad k$

$$1 \qquad\qquad 1 \quad 1 \quad 1$$

where $|a|$ indicate of **horizontal** dilate, $|b|$ **vertical** dilate

k indicates a quantity of **horizontal** translate, h **vertical** translate

$a < 0$ horizontal reflection and $b < 0$ vertical reflection

Example 2