SM3-A Vocab 4-5 (Reciprocal Function)

Asymptote: A <u>vertical</u>, <u>horizontal, or oblique</u> line that the graph <u>approaches</u> but <u>NEVER</u> reaches.   Asymptotes are <u>not part of the graph</u> but we usually show them as a dotted line.

<u>Vertical Asymptote</u>: is cause by a zero of the denominator that <u>does NOT disappear due to simplification.</u>

$$g(x) = \frac{1}{x} + 7 \qquad h(x) = \frac{5}{(x-2)} \qquad f(x) = \frac{-3}{(x+3)} + 5$$

<u>Vertical Asymptote for</u>:   g(x):   x = 0,   h(x): x = 2,   f(x): x = -3

<u>Horizontal asymptote</u>: a horizontal line that the graph approaches but never reaches.

a) Functions that have horizontal asymptotes: (1) Exponential (2) Reciprocal