3.2 - Infinite Limits and Limits at Infinity

I. Vertical Asymptotes (Infinite Limits)

A. The vertical line $x = a$ is a **vertical asymptote** if

$\lim_{x \to a^{\pm}} f(x) = \pm \infty$ (as x approaches a from the left or the right, $f(x) \uparrow$ or $\downarrow$ without bound)

EX:

EX:

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II. Horizontal Asymptotes (Limits at Infinity)

For $f(x) = \frac{x^p}{x^q}$, if

A. $p > q$

B. $q > p$

C. $p = q$

EX:

III. Describing end behavior of a polynomial and rational function.

3.2 # 21 - 29 (odd), 39 - 51 (odd), 61 - 67 (odd)