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JC MATHEMATICS (H2) STUDY TIPS

**THE 50-50 METHOD:
ELIMINATING FORBIDDEN
REGIONS IN SKETCHING
RECIPROCAL GRAPHS**

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JC_H2Maths_019



1. In general, a point (a, b) of $f(x)$ becomes $(a, \frac{1}{b})$ of $\frac{1}{f(x)}$.

Likewise, if $f(x)$ has an asymptote $y = b$, then $\frac{1}{f(x)}$ has an asymptote $y = \frac{1}{b}$.

2. When $f(x)$ $\uparrow$, $\frac{1}{f(x)}$ $\downarrow$. When $f(x)$ $\downarrow$, $\frac{1}{f(x)}$ $\uparrow$.

3. When $f(x)$ is min., $\frac{1}{f(x)}$ is max.. Likewise, if $f(x)$ is max., $\frac{1}{f(x)}$ is min..

4. When $f(x)$ is +ve., $\frac{1}{f(x)}$ is also +ve.. When $f(x)$ is -ve., $\frac{1}{f(x)}$ is also -ve..

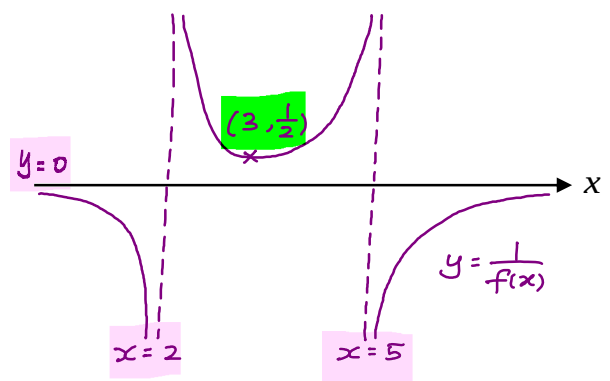
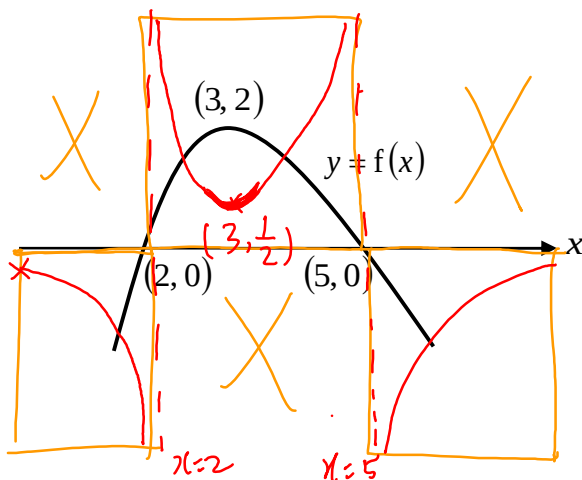
Hence the signs of $f(x)$ and $\frac{1}{f(x)}$ remain unchanged.

5. Any x-intercept of $f(x)$ becomes a vertical asymptote of $\frac{1}{f(x)}$.

Meanwhile, any vertical asymptote of $f(x)$ becomes a x-intercept of $\frac{1}{f(x)}$.

Quick Practice

Sketch the graph of $y = \frac{1}{f(x)}$.





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Explanation

The trademark 50-50 Method streamlines sketching reciprocal functions. The technique relies on a single mathematical rule. Taking a reciprocal leaves the y-value sign completely unchanged.

Positive graph portions must stay strictly positive. Negative portions must stay strictly negative. You can immediately identify dead zones.

This step helps you avoid drawing graphs in forbidden regions. It creates a secure visual layout beforehand. Ultimately, this boundary setup works beautifully to minimize the chance of making mistakes.

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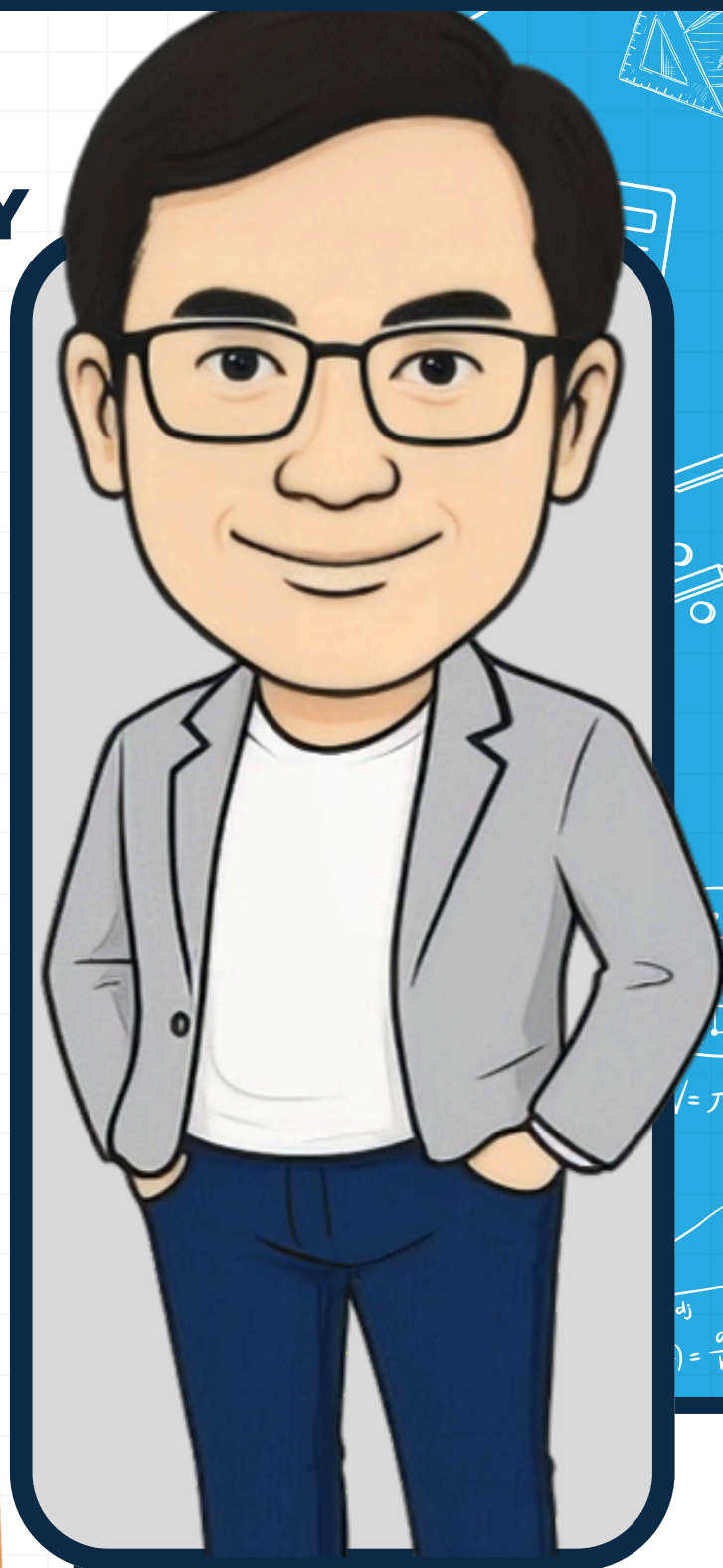
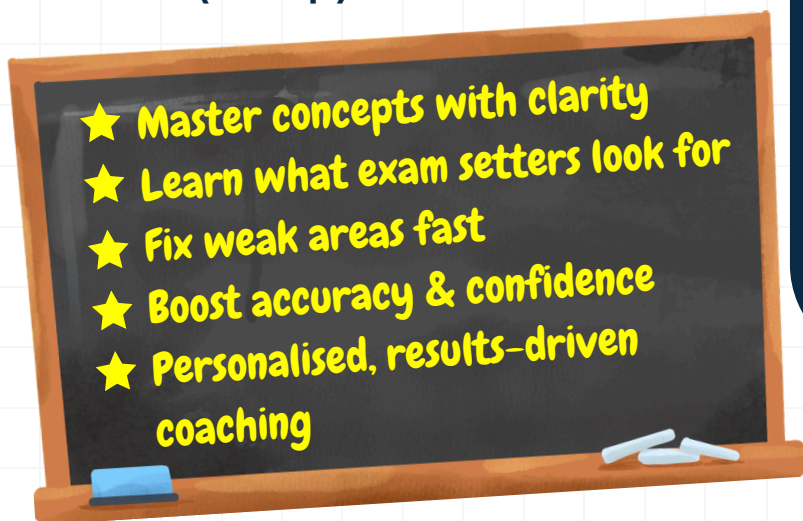
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