Relationships Between Functions and Their Reciprocals

If F(x) is:

Positive

Negative

Zero (x-intercept)

Undefined (vertical asymptote)

Equal to 1

Equal to -1

Increasing (rising)

Decreasing (falling)

Even (y axis symmetry)

Odd (origin symmetry)

Symmetric about x=a

Approaching $+/-\infty$ (blowing up or down)

Approaching zero (horizontal asymptote)

A local Maximum

A local Minimum

Then, 1 / F(x) is: **Positive** Negative Undefined (vertical asymptote) Zero (x-intercept) Equal to 1 Equal to -1 Decreasing (falling) Increasing (rising) Even (y axis symmetry) **Odd** (origin symmetry) Symmetric about x=a **Approaching zero** (horizontal asymptote) Approaching $+/-\infty$ (blowing up or down) A local Minimum (usually)

A local Maximum (usually)

See examples on next page

$$f(x) = x^{2} + 2x - 8$$

$$(W_{n+1} + \frac{1}{2} +$$

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