Exercise 40

Determine the infinite limit.

$$\lim_{x\to 2^-} \frac{x^2-2x}{x^2-4x+4}$$

Solution

Rewrite the given limit.

$$\lim_{x\to 2^-} \frac{x(x-2)}{(x-2)^2}$$

$$\lim_{x\to 2^-} \frac{x}{x-2}$$

Since x goes to 2 from the left, the numerator is positive and the denominator is negative. Therefore,

$$\lim_{x\to 2^-} \frac{x^2-2x}{x^2-4x+4} = -\infty.$$