Source: [KBMATH401ComputingLimits]

1 | Solving Limits with Elimination

With solving limits via elimination, we are tipically analyzing a rational function that needs factoring of a term out of the polynomials on the top and/or the bottom to get out of the indeterminate form $(\frac{0}{0})$.

Let's do a problem solve for $\lim_{x\to 2} \frac{(x^2-4)}{(x-2)}$

1. First, notice the fact this function will have a hole at $x = 2$. This is especially important because after we simplify we will loose this hole.
2. Ok, now let's simply. $\frac{(x^2-4)}{(x-2)} = \frac{(x+2)(\cancel{(x-2)})}{(\cancel{x-2})} = (x + 2)$
3. Great! So, we know that this function behaves linearly with simply a hole at 2.
4. Doing the double-sided limits…
    - Evaluating $\lim_{x\to 2^+}$, the value will be 4 because $2 + 2 = 4$.
    - Evaluating