Practice 3: Calculus

1. Find if exists the limit of the sequence as $n \to \infty$

1. $\frac{1}{n^2}$
2. $\frac{n^2}{2-n^3}$
3. $(0.99) * n$
4. $(1.01) * n$
5. $\sin(\pi n)$

Romantic interpretation of 3 and 4

2. Derivatives

Calculate $f'(x)$ 1. $x^2 + 4$ 2. $3x^4 - \frac{1}{x}$ 3. $5\sin^2(x)$ 4. xe^x

3. TanH derivative

Calculate the derivative of tangent hyperbolic function $f(x) = \tanh(x)$.

Here is the plot: