

### Practice Exercise For Lecture 22

Q1. Find the vertical asymptotes for the function  $f(x) = \frac{x+4}{x^2-25}$ .

Answer. Vertical asymptotes at  $x = \pm 5$

Q2. Find the horizontal asymptotes for the function  $f(x) = \frac{x+4}{x^2-25}$ .

Answer. Horizontal asymptotes at  $y = 0$

Q3. If  $f(x) = 2x^4 - 16x^2$ , determine all relative extrema for the function using First derivative test.

Answer. relative minimum at  $x = \pm 2$ , relative maximum at  $x = 0$

Q4. Find the relative extrema of  $f(x) = \sin x - \cos x$  on  $[0, 2\pi]$  using 2<sup>nd</sup> derivative test.

Answer. relative maximum at  $x = \frac{3\pi}{4}$ , relative minimum at  $x = \frac{7\pi}{4}$

Q5. Find the critical points of  $f(x) = x^{4/3} - 4x^{1/3}$ .

Answer.  $x = 0$  and  $x = 1$