Practice worksheet | Functions and graph sketching

Intercepts, stationary behaviour and asymptotes

Name: _____ Date: _____

6 questions | 26 marks

1. For $f(x) = \frac{x^2}{x-1}$, find asymptotes and stationary points. [5 marks]

2. For $f(x) = \frac{x^2-4}{x^2-1}$, give intercepts, asymptotes and its stationary point. [5 marks]

3. Find the stationary points of $f(x) = x + \frac{1}{x}$ and classify them. [4 marks]

4. For $f(x) = \frac{x^3}{x^2 - 1}$, explain why the origin is not a local extremum. [4 marks]

5. Find all x-intercepts of $f(x) = \frac{x+1}{x^2 - 1}$ and explain any excluded apparent intercept. [3 marks]

6. Find the range of $f(x) = \frac{x^2}{x - 1}$ using its extrema or a discriminant. [5 marks]