

Find each of the following, then sketch the graph. Show work/logic used.

NO GRAPHING CALCULATORS

1. $f(x) = \frac{2(x^2 - 9)}{x^2 - 4}$

A: Intercepts:

B: Symmetry:

x-intercept(s) $(-3, 0) (3, 0)$

y-axis: Y/N _____

y-intercept(s) $(0, 9/2)$

origin: Y/N _____

C: Domain $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$

D: Vertical Asymptote(s): $x = \pm 2$

Range $(-\infty, 2) \cup (9/2, \infty)$

Horizontal Asymptote: $y = 2$

End Behavior: _____

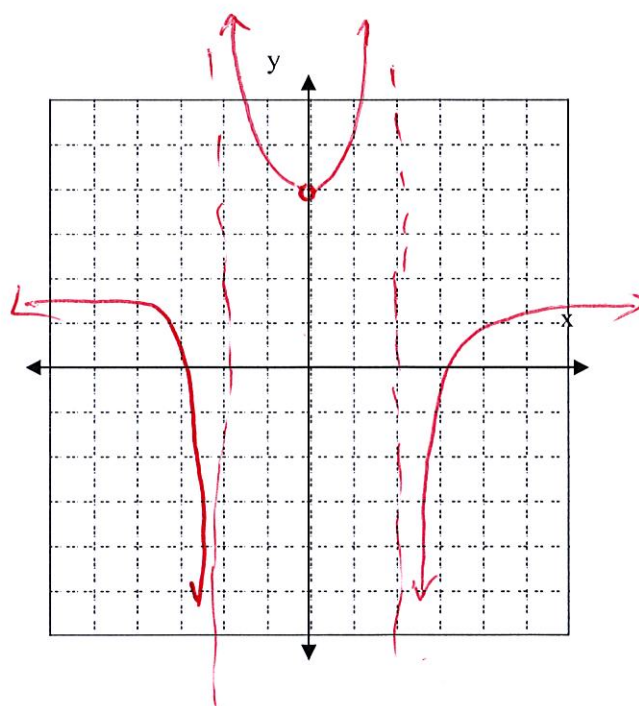
E: $f'(x) = \frac{20x}{(x^2 - 4)^2}$

Critical Point(s): $x = 0$

F: $f''(x) = \frac{-20(3x^2 + 4)}{(x^2 - 4)^3}$

Inflection Point(s): none

Label Axis



$$\begin{array}{ccccccc} & - & & - & & + & & + \\ & | & & | & & | & & | \\ & -2 & & 0 & & 2 & & \end{array}$$

relative min $(0, 9/2)$

$$\begin{array}{ccccccc} & - & & + & & - & \\ & | & & | & & | & \\ & -2 & & 2 & & \end{array}$$

Find each of the following, then sketch the graph. Show work/logic used.

NO GRAPHING CALCULATORS

1. $f(x) = \frac{\cos(x)}{1 + \sin(x)}$ $(-\pi/2, 3\pi/2)$

A: Intercepts:

B: Symmetry:

x-intercept(s) $(\pi/2, 0)$

y-axis: Y/N Y

y-intercept(s) $(0, 1)$

origin: Y/N Y

C: Domain $(-\pi/2, 3\pi/2)$

D: Vertical Asymptote(s): $x = -\pi/2, 3\pi/2$

Range $(-\infty, \infty)$

Horizontal Asymptote: N/A

End Behavior: $\lim_{x \rightarrow -\pi/2} f(x) = \infty$ $\lim_{x \rightarrow 3\pi/2} f(x) = -\infty$

E: $f'(x) = \frac{-1}{1 + \sin x}$

Critical Point(s): none

F: $f''(x) = \frac{\cos x}{(1 + \sin x)^2}$

Inflection Point(s): $(\pi/2, 0)$

Label Axis

