JAN 15/08

LET $f(x)=\frac{p(x)}{q(x)}$ WHERE $p(x)$ AND $q(x)$ ARE POLYNOMIALS WITH NO COMMON FACTORS

1. FIND AND PLOT THE Y-INTERCEPT (IF ANY) BY EVALUATING $f(0)$
2. FIND THE ZEROS OF THE NUMERATOR (IF ANY) BY SOLVING THE EQUATION $p(x)=0$. PLOT THE X-INTERCEPTS
3. SKETCH THE ASYMPTOTES BY SOLVING THE EQUATION $q(x)=0$ VERTICAL ASYMPTOTES
4. FIND AND SKETCH THE HORIZONTAL ASYMPTOTE BY USING THE RULE FROM BEFORE.
5. USE THE SIGN ANALYSIS
6. USE SMOOTH CURVES TO COMPLETE THE GRAPH

Jan 15-9:14 AM

EG SKETCH $f(x) = \frac{3}{x-2}$

FIND y-INT SET $f(0)$

$f(0) = \frac{3}{0-2} = -\frac{3}{2}$ $\left(0, -\frac{3}{2}\right)$

X-INT - NONE

VERTICAL ASYMPTOTE

$0 = x-2$ $x=2$

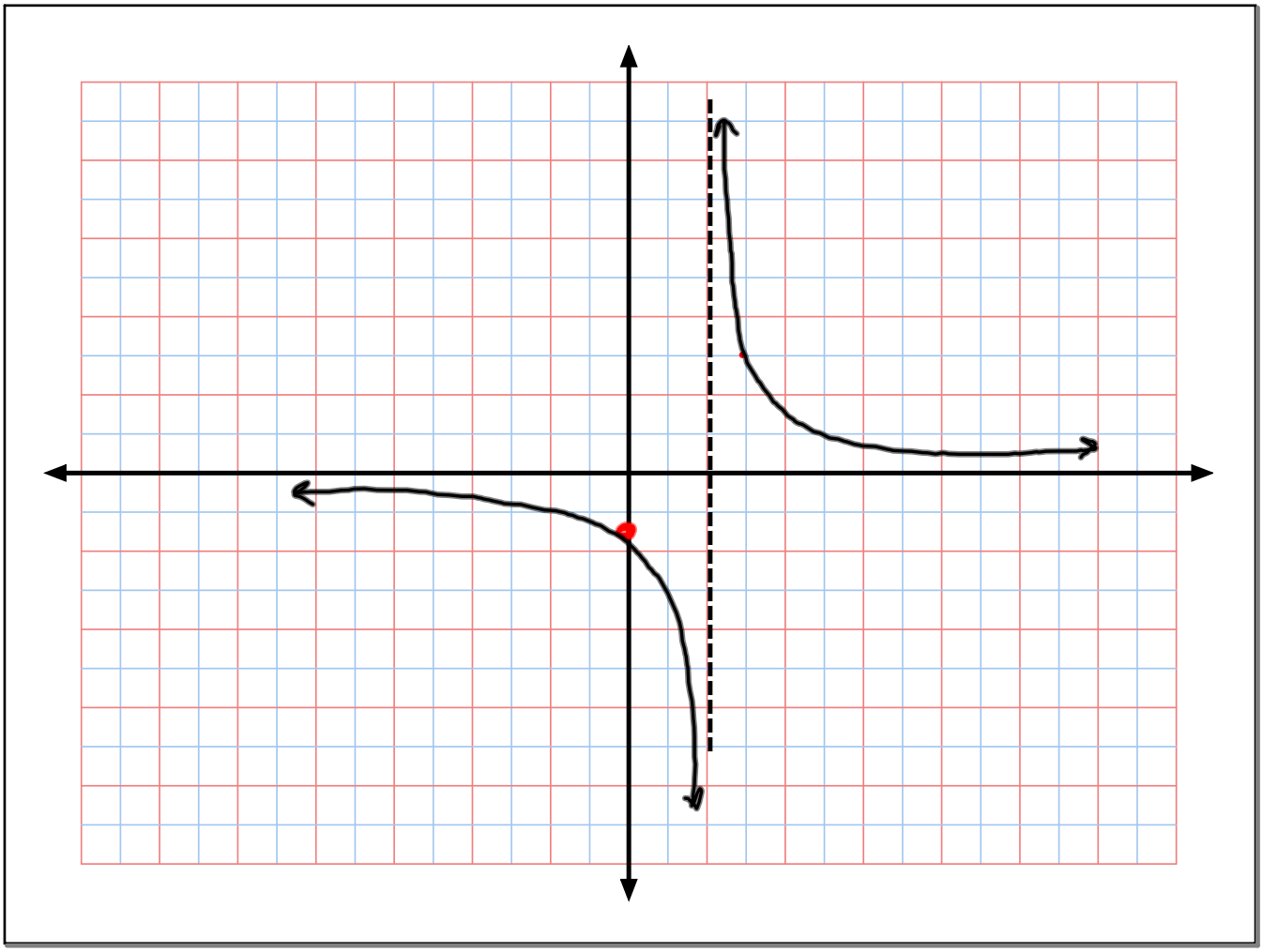
HORIZONTAL ASYMPTOTE

$y=0$

SIGN ANALYSIS

$x>2$ $x=3$ POSITIVE

Jan 15-9:27 AM



Jan 15-9:29 AM

EG. SKETCH $f(x) = \frac{2x^2}{x^2-4}$

Y-INT $f(0) = \frac{2(0)^2}{0-4} = 0$

X-INT $2x^2 = 0 \quad x = 0$

VERT ASYMPTOTES $x^2 - 4 = 0$

$(x-2)(x+2) = 0$

$2 \quad -2$

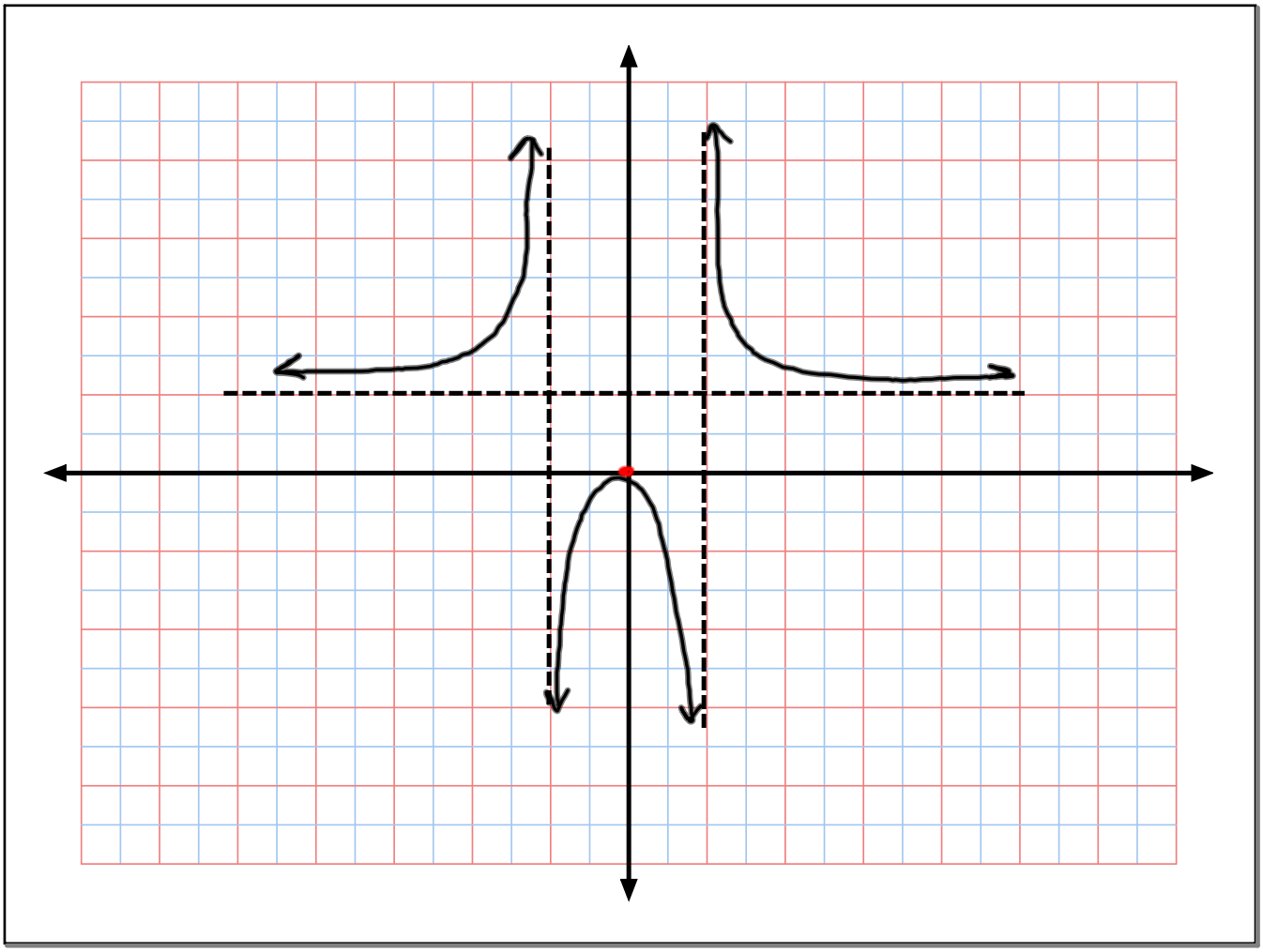
HORI ASYMPTOTES

$y = \frac{a}{b} = \frac{2}{1} = 2$

CHECKING SINGS

$x > 2 \quad x = 3 \quad$ POSITIVE

Jan 15-9:42 AM



Jan 15-9:44 AM