01/11/2023 – 6.9B HW Work

$$f(x) = \frac{(ax+b)(x-c)^2}{(x-c)(x+d)^2}$$

(1) Holes $\frac{(ax+b)(x-c)^2}{(x-c)(x+d)^2}$

Nothing Cancels

None

(2) Roots $0 = \frac{(ax+b)(x-c)^2}{(x-c)(x+d)^2}$

$0 = (ax+b)(x-c)^2$

$-\frac{b}{a}$ c

(3) Y Intercept $y = \frac{a(0)+b)((0)-c)^2}{((0)-c)((0)+d)^2}$

$-\frac{bc^2}{cd^2}$

$-\frac{bc}{d^2}$

(4) Vertical Asymptote $0 = (x-c)(x+d)^2$

c $-d$

(5) Horizontal Asymptote $\frac{(ax+b)(x-c)^2}{(x-c)(x+d)^2}$

$\frac{ax^3\ldots}{x^3\ldots}$

a