Rational Functions

Poly Numerator — Zeros (ZN) — Degree DN LN

Poly Denominate — Zeros (ZD)

Zeros of Rational = ZN

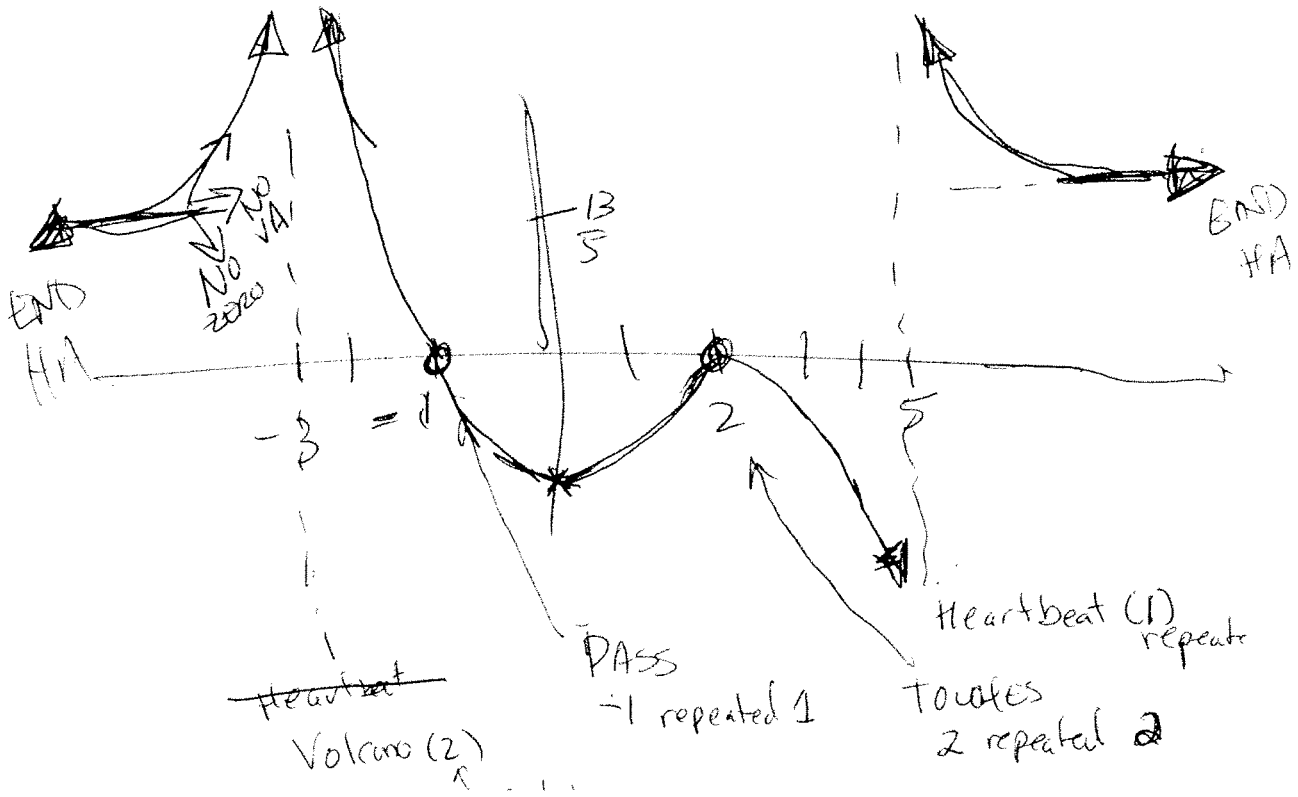
Vertical Asymptote = ZD

END Behavior — DN = 3, DD = 3 — HA = $\frac{LN}{LD} = \frac{13}{5}$

Ex $y = \dfrac{13(x-2)^2(x+1)^1}{5(x+3)^2(x-5)^1}$

zeros: ZN = 2, -1

V.A: ZD = -3, 5



Ex

$$y = \frac{13(x-2)^2(x+3)^1}{5(x-7)^3(x+1)^2}$$

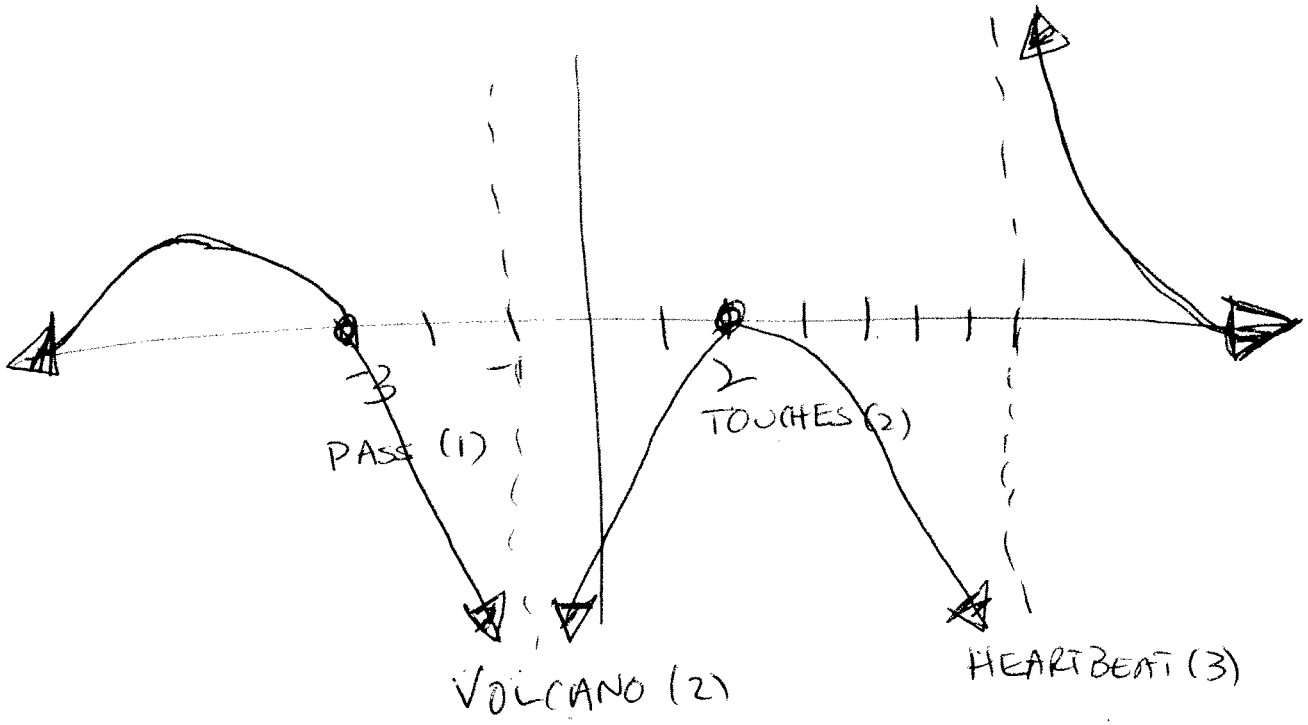
ZN: 2, -3

ZD: 7, -1

Zeros of y : 2, -3

Vertical Asm : 7, -1

END DN: 3 DD: 5 DD > DN $y = 0$



$$y(-4) = \frac{13(-6)^2(-1)^1}{5(-11)^3(-3)^2} = +$$

Ex $y = \dfrac{-3(x-4)^7}{5(x+2)^3}$

ZN = 4

ZD -2

Zeros of y : 4

VA : -2

DN : 7

DD : 3

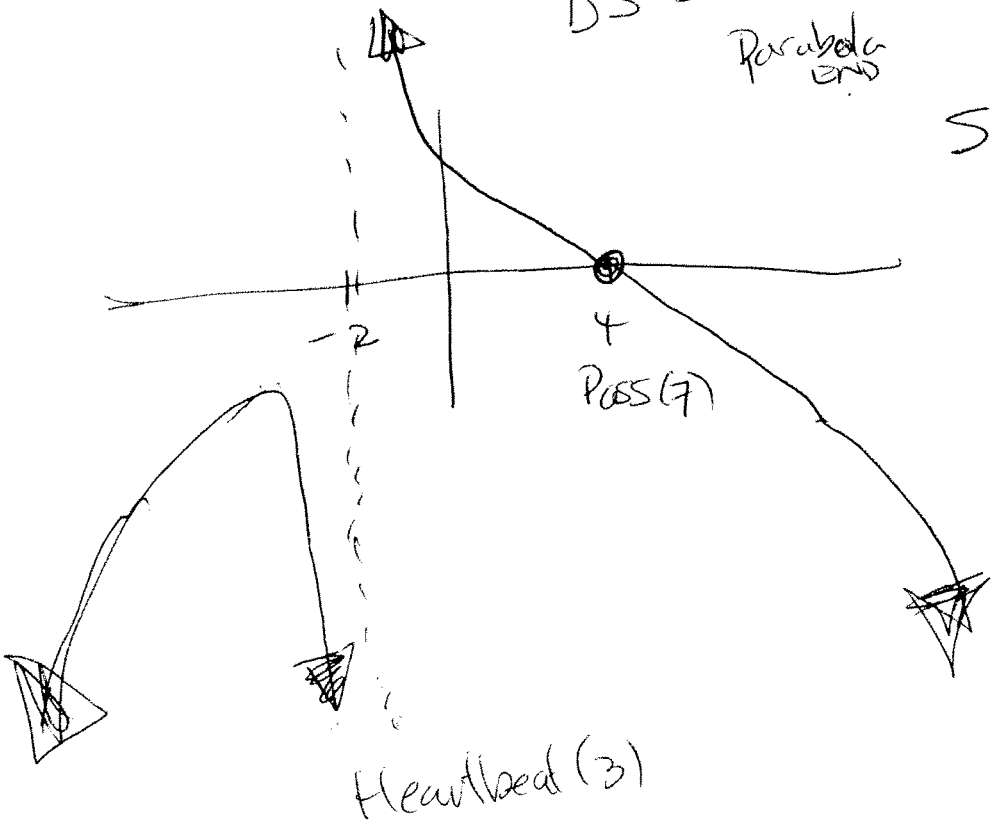
DS = 7-3 = 4

Parabolic End

$LS = \frac{LN}{LD} = \frac{-3}{5}$

SAD

END Behavior

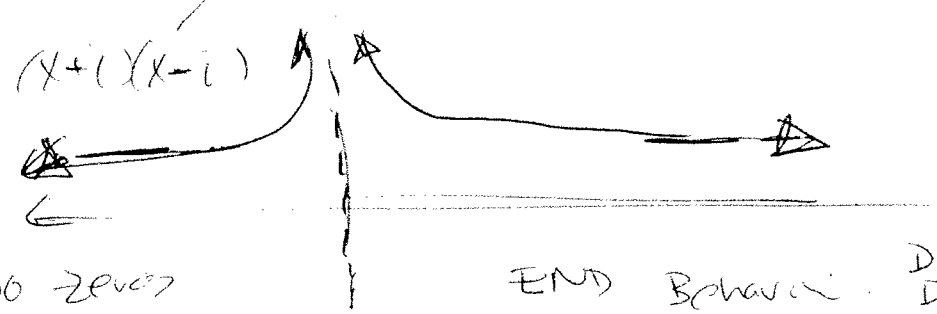


Ex $y = \dfrac{x^2+1}{x^2}$

ZN: No Real

ZD: 0

$(x+i)(x-i)$



No Zeros

VA: x = 0

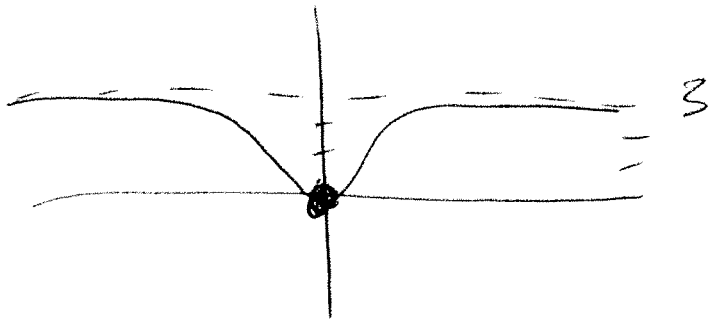
END Behavior

DN = 2

DD = 2

HA: $y = \frac{LN}{LD} = \frac{1}{1} = 1$

Ex



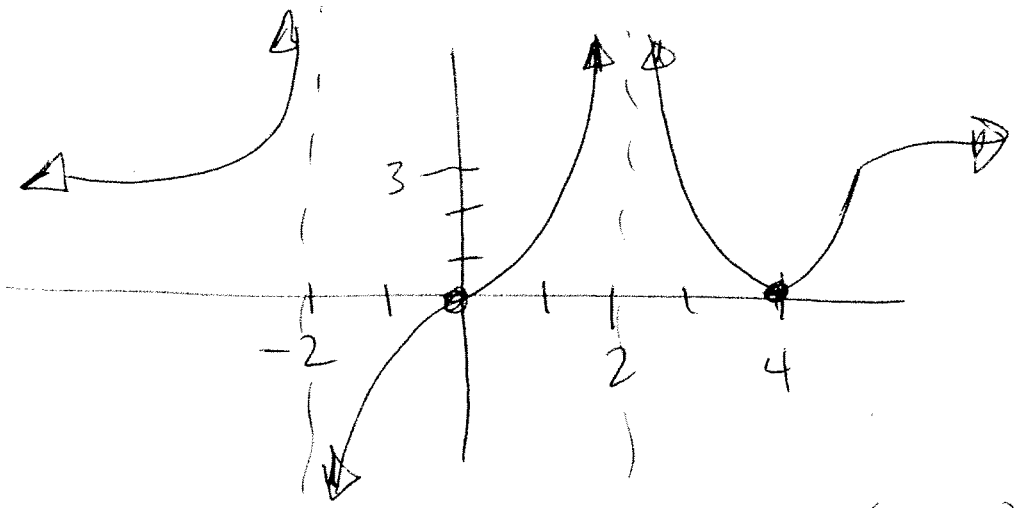
zero: $x=0$ $\quad x^2$

HA: $y=\frac{3}{1}$ $\quad$ DN=DN
LN=3 LD=1

$$y=\frac{3x^2}{1x^2+4}$$ ≠ NO Real zeros

$(x+2i)(x-2i)$

Ex



zeros: 0, 4
VA: $x=-2, 2$

$$y=\frac{3(x)(x-4)^2}{1(x+2)(x-2)^2}$$

GROUP NAME: DA Guidance	**Student Names (First and Last)**
Logo:	**Speaker/Presenter:** Harrison Sanchez
Date: ~~9-23-13~~	**Writer/Prep:** Vinnie Ahad
Topics:	**QC/Leader:** Joe Kpaway

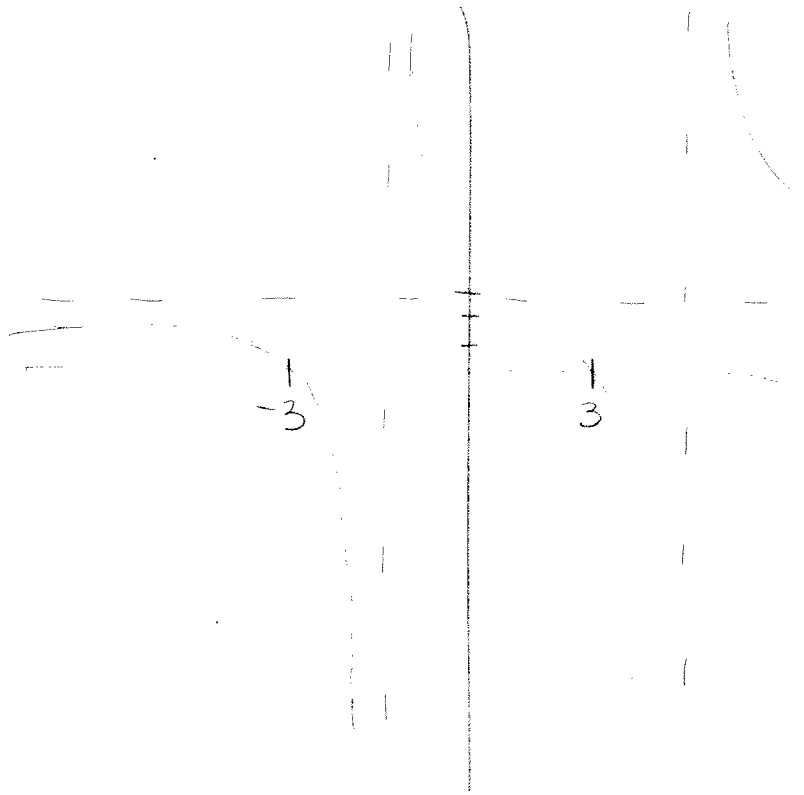
Instructions:

VA: $x = -2, x = 5$

HA: $y = 3$

Zeros: $3, -3$

Pass: $(-7, 2)$



$$\frac{3(x-3)^1(x+3)^1}{1(x+2)^1(x-5)^1}$$

$$f x = \frac{a}{x-3}$$

$$f x = \frac{a(x-B)}{x-C}$$

$$f x = \frac{a}{(x-B)(x-C)}$$

$$f x = \frac{a(x-B)}{(x-C)(x-d)}$$

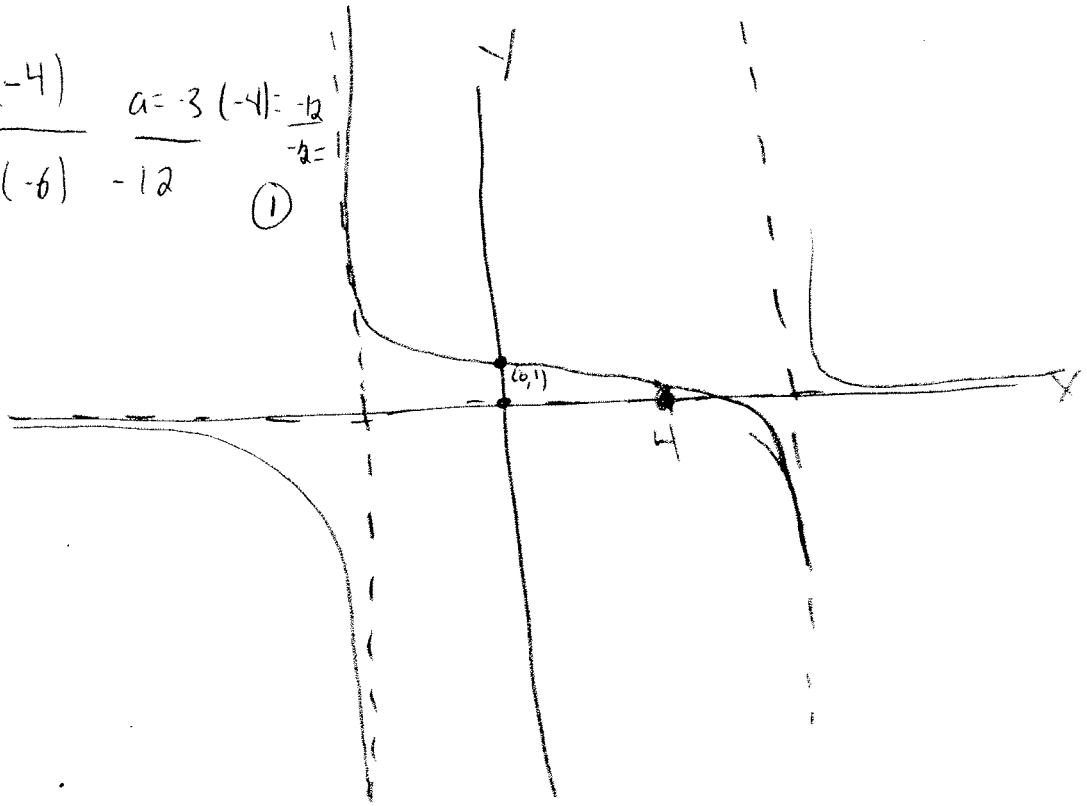
$$f x = \frac{a(x-B)(x-C)}{(x-D)(x-E)}$$

GROUP NAME:	**Student Names (First and Last)**
Logo:	**Speaker/Presenter:** Trey
Date:	**Writer/Prep:** Dominique
Topics:	**QC/Leader:** Tatiana C.

Instructions:

$y = \frac{a(x-4)}{(x+2)(x-6)}$ VA: $-2, 6$ $y = 0$ HA

$1 = \frac{a \cdot (-4)}{(2)(-6)}$ $a = -3(-4) = \frac{-12}{-12} = 1$ ①



Answer

$$y = \frac{3(x-4)}{(x+2)(x-6)}$$

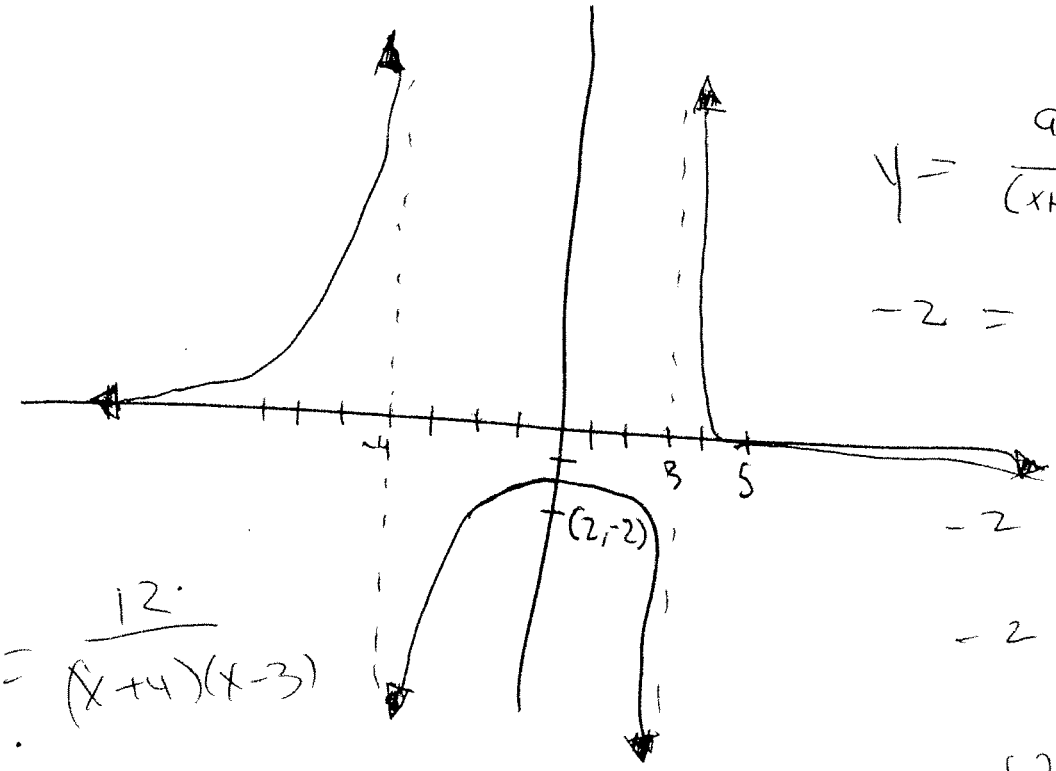
GROUP NAME:	Student Names (First and Last)
Logo:	Speaker/Presenter: Brandon Ramos
Date:	Writer/Prep: Simon Gurman
Topics:	QC/Leader: Parish Jariwala

Instructions:

No zeros

VA: -4, 3

$y = \frac{a}{(x+4)(x-3)}$



$-2 = \frac{a}{(2+4)(2-3)}$

$-2 = \frac{a}{(6)(-1)}$

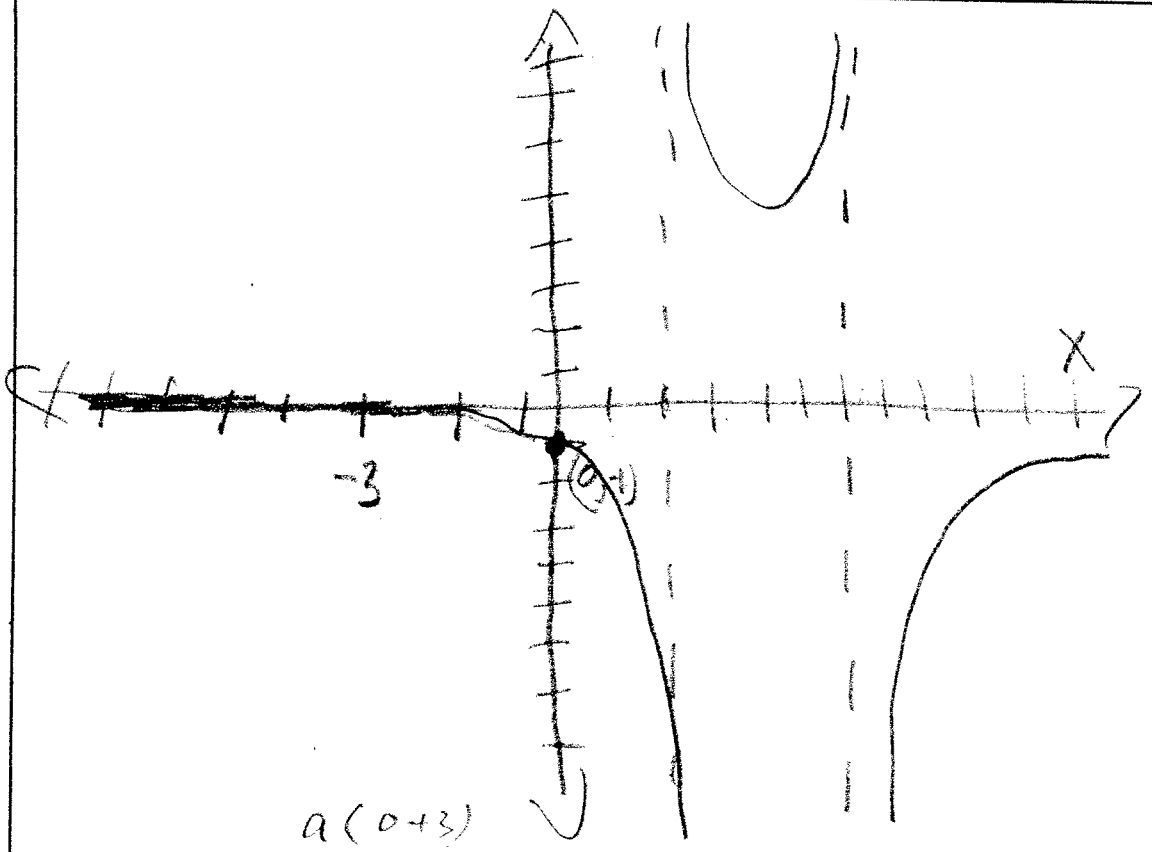
$-2 = \frac{a}{-6}$

$12 = a$

$y = \frac{12}{(x+4)(x-3)}$

GROUP NAME:	**Student Names (First and Last)**
Logo:	**Speaker/Presenter:** Stan Kaplan
Date:	**Writer/Prep:** Val Sinclair
Topics:	**QC/Leader:** Damyan Zhou

Instructions:



$$-1 = \frac{a(0+3)}{(0-2)(0-6)}$$

$$(-1)(12) = 3a$$

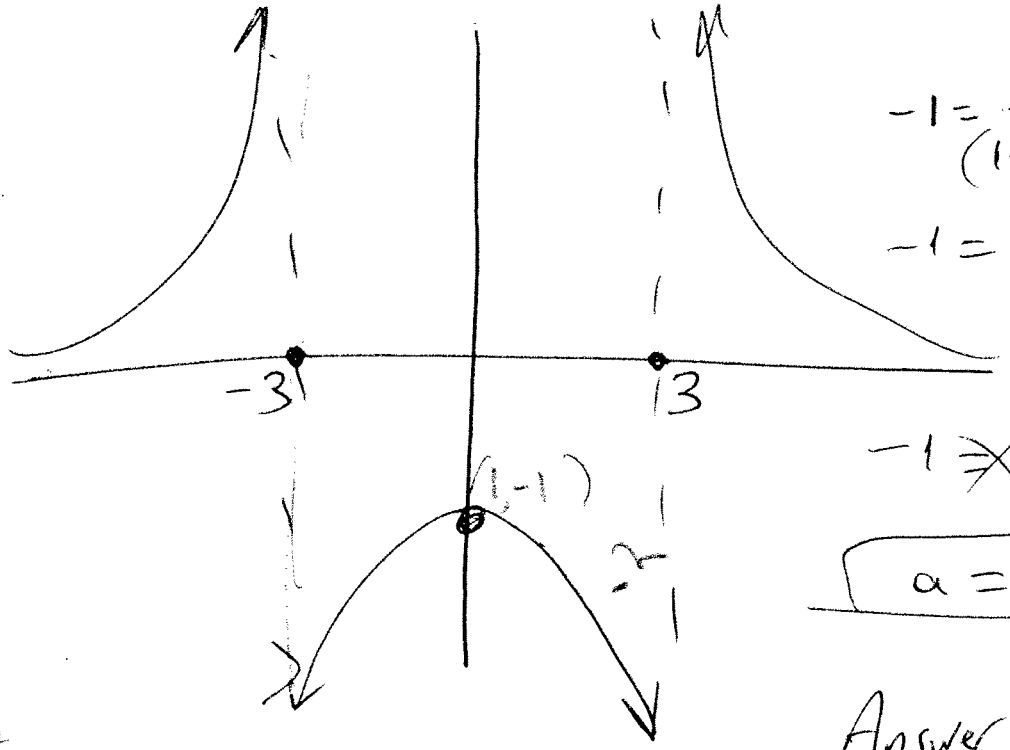
$$a = \frac{-12}{3} = -4$$

$$\frac{a(x-b)}{(x-c)(x-d)} \qquad y = \frac{-4(x+3)}{(x-2)(x-6)}$$

$$-1\,\frac{(x+3)^1}{(x-2)^3(x-6)^2}$$

GROUP NAME: [redacted]	Student Names (First and Last)
Logo:	Speaker/Presenter: Onur Turkay
Date:	Writer/Prep: Kendrie Snow
Topics:	QC/Leader: Sharon Isoe

Instructions:



$-1 = \frac{a}{(1+3)(1-3)}$

$-1 = \frac{a}{4 \cdot -2}$

$-1 = \frac{a}{-8}$

$a = 8$

~~ZP~~ HA

ZD: 3, -3

V.A = 3, -3

$y = \frac{a}{(x+3)(x-3)}$

x for 1 and y for -1

$-1 = \frac{a}{4 \cdot 2}$ $\quad a = 8$

Answer $y = \frac{8}{(x+3)(x-3)}$

GROUP NAME: ILM

Logo:

Date: 09/23

Topics: Rational Function

Student Names (First and Last)

Speaker/Presenter: Jake Peebles

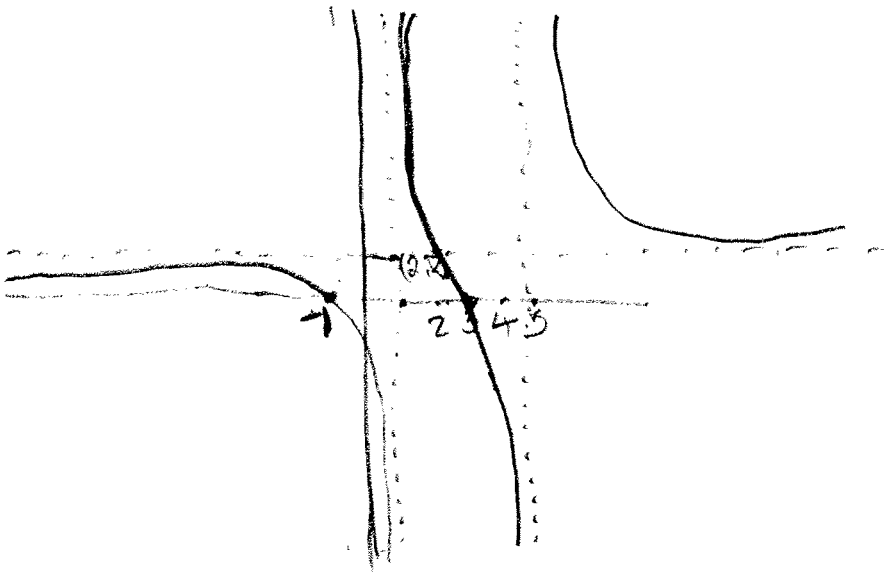
Writer/Prep: Hiral Desai

QC/Leader:

Instructions: Find the (osned equation

$f(x) = \frac{a}{x-b}$, $f(x) = \frac{a(x-b)}{x-c}$ $f(x) = \frac{a}{(x-b)(x-c)}$ $f(x) = \frac{a(x-b)}{(x-c)(x-d)}$

$f(x) = \frac{a(x-b)(x-c)}{(x-d)(x-e)}$



Answer

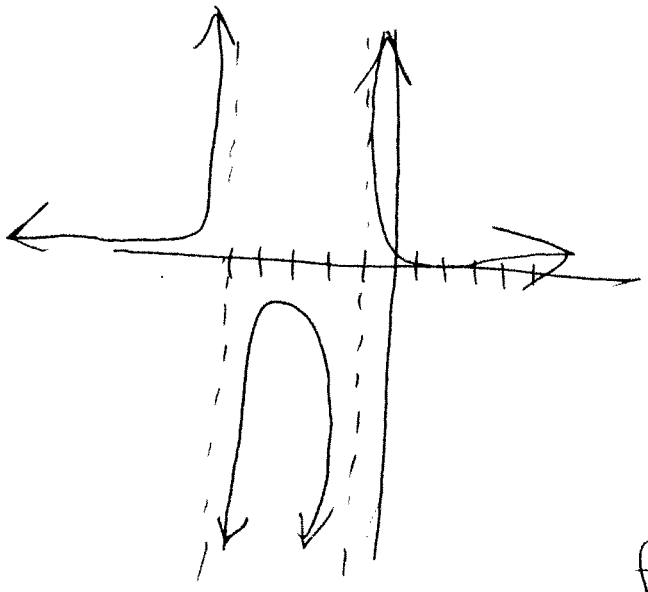
$$f(x) = \frac{a(x-b)(x-c)}{(x-d)(x-e)}$$

$$f(x) = \frac{2(x+1)(x-3)}{(x-1)(x-5)}$$

GROUP NAME: Rachel Joyce, Kausalya, Alex **Logo:** Valerie	**Student Names (First and Last)** **Speaker/Presenter:** _____
Date: 9/23/13 **Topics:**	**Writer/Prep:** _____ **QC/Leader:** _____

Instructions: With this graph decide which equation it is

$f(x)=\frac{a}{x-b}$ $f(x)\frac{a(x-b)}{x-c}$ $f(x)=\frac{a}{(x-b)(x-c)}$ $f(x)=\frac{a(x-b)}{(x-c)(x-d)}$ $f(x)=\frac{a(x-b)(x-c)}{(x-d)(x-e)}$



Va = x = -5, -1

Y=0 N<D

2 heartbeats

no zeroes

DN=1

DD=2

$f(x)=\frac{a}{(x-b)(x-c)}$

a=15

$f(x)=\frac{a}{(x+5)(x+1)}$

$f(x)=\frac{x}{(x+5)(x+1)}$

GROUP NAME: Math Lovers	**Student Names (First and Last)**
Logo:	**Speaker/Presenter:** Avik Khareja
Date: 9/25/13	**Writer/Prep:** Avik Khareja
Topics:	**QC/Leader:** Jon Sabino

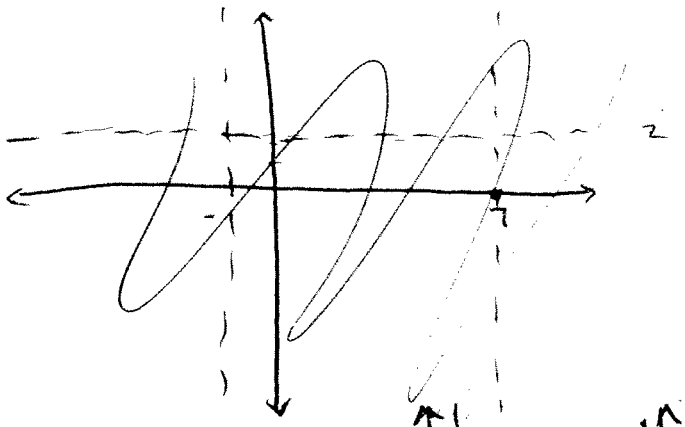
Instructions:

VA: $x = -1$
$x = 6$

HA: $y = 2$

x int: 5

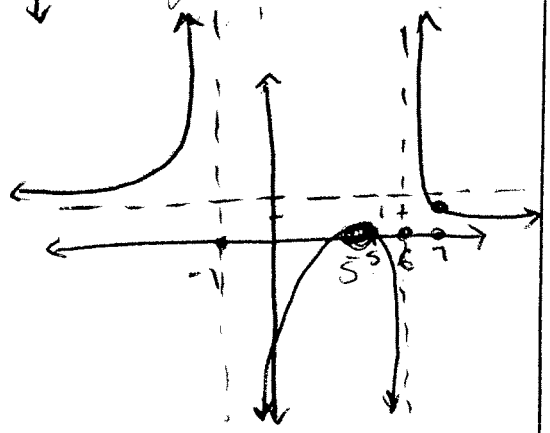
Passes through: $(7, 1)$



ZD: $(x+1)(x-6)$

ZN: $(x-5)(x-5)$

so $2(x-5)(x-5)$
$(x+1)(x-6)$

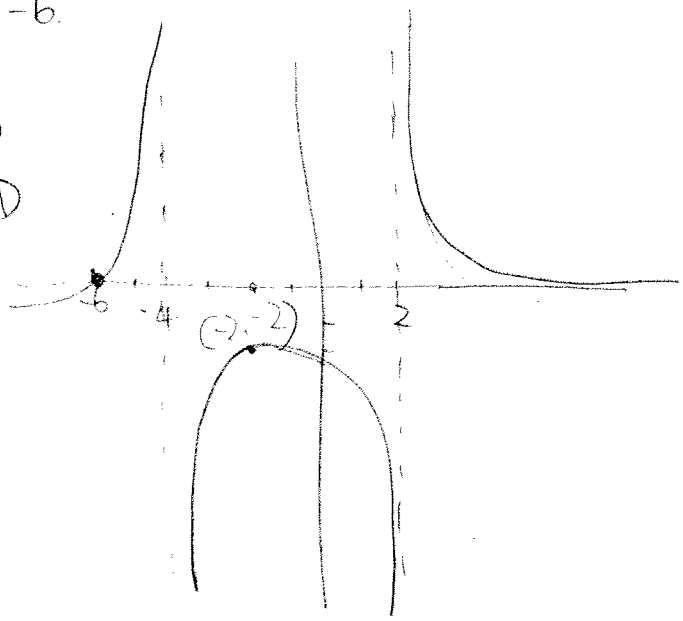


answer: $\frac{a(x-b)}{(x-c)(x-d)}$

GROUP NAME:	Student Names (First and Last)
Logo:	Speaker/Presenter: Mengyi Guo
Date:	Writer/Prep: Mengyi Guo
Topics:	QC/Leader: Rex Liang

Instructions:

ZD: 2, -4
ZN: -6
D
$y \geq 0$
N < D



$y = \frac{a(x+6)}{(x-2)(x+4)}$

$y = \frac{a(-2+6)}{(-2-2)(-2+4)}$

$-2 = \frac{a(4)}{-4(2)}$

$-2 = \frac{4a}{-8}$

$\frac{4a}{-8} = -2$

$4a = 16$

$a = 4$

$y = \frac{4(x+6)}{(x-2)(x+4)}$

GROUP NAME:	Student Names (First and Last)
Logo:	Speaker/Presenter: Natalie Cashin
Date:	Writer/Prep: LAUREN POBO
Topics:	QC/Leader: Beth

Instructions:

VA: $x=-1, x=3$

HA: $y=0$ N<M

x-INT: 1 ∴ ZERO@1

P: (2,1)

$y = \frac{(x-1)}{(x+1)(x-3)}$

$1 = \frac{a(2-1)}{(2+1)(2-3)} = \frac{a1}{(3)(-1)} = \frac{a1}{-3} = 1$ $a = (1)\cdot(-3)$

$a = -3$

$y = \frac{-3(x-1)}{(x+1)(x-3)}$