

ALGEBRA 2/PRECALCULUS

RATIONAL FUNCTIONS FOUR-SQUARE ACTIVITY

Rationale 4-Way Form A

Given: $f(x) = \frac{x^2 + 2x - 8}{x^2 - x - 2}$

PERSON #1: Factor the function

PERSON #2: Check and initial: _____

PERSON #3: Find the y-intercept

PERSON #4: Check and initial: _____

PERSON #1: Check and initial: _____

PERSON #2: Find the vertical asymptote

PERSON #3: Check and initial: _____

PERSON #4: Graph the asymptotes.

PERSON #1: Label the x-intercept.

PERSON #2: Label the y-intercept.

PERSON #2: Find the x-intercept

PERSON #3: Check and initial: _____

PERSON #4: Find the horizontal asymptote

PERSON #1: Check and initial: _____

PERSON #2: Find the coordinates of the hole.

PERSON #3: Check and initial: _____

PERSON #4: Check and initial: _____

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Rationale 4-Way Form B

Given: $f(x) = \frac{x^2 - 2x - 15}{x^2 + 2x - 3}$

PERSON #1: Factor the function

PERSON #2: Check and initial: _____

PERSON #3: Find the y-intercept

PERSON #4: Check and initial: _____

PERSON #1: Check and initial: _____

PERSON #2: Find the vertical asymptote

PERSON #3: Check and initial: _____

PERSON #4: Graph the asymptotes.

PERSON #1: Label the x-intercept.

PERSON #2: Label the y-intercept.

PERSON #2: Find the x-intercept

PERSON #3: Check and initial: _____

PERSON #4: Find the horizontal asymptote

PERSON #1: Check and initial: _____

PERSON #2: Find the coordinates of the hole.

PERSON #3: Check and initial: _____

PERSON #4: Check and initial: _____

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RATIONAL FUNCTIONS - A FOUR-SQUARE ACTIVITY

OBJECTIVE:

Students will work cooperatively, in groups of four, to analyze a given rational function. Tasks include factoring, finding both x -intercept and y -intercept, horizontal and vertical asymptotes, and the coordinates of the hole. When completed, students are given the task to graph the function.

PREPARATION:

Copy the handouts for students. Assign students to groups of four. Have them work through the activity. "Bouncing" through the "FOUR-SQUARE" until they complete the assignment.

Please visit my store for more engaging task card activities.

GIVEN:

$$f(x) = \frac{x^2 + 2x - 8}{x^2 - x - 2}$$

PERSON #1: Factor the function

PERSON #2: Find the x -intercept

PERSON #2: Check and initial: _____

PERSON #3: Check and initial: _____

PERSON #3: Find the y -intercept

PERSON #4: Find the horizontal asymptote

PERSON #4: Check and initial: _____

PERSON #1: Check and initial: _____

PERSON #1: Find the vertical asymptote

Person #2: Find the coordinates of the hole.

PERSON #3: Check and initial: _____

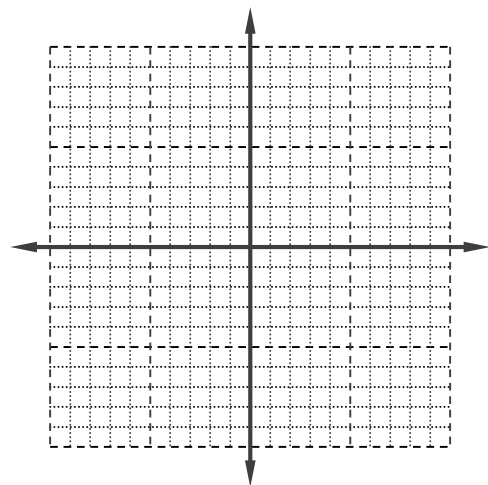
PERSON #4: Check and initial: _____

PERSON #3: Graph the asymptotes.

PERSON #4: Graph the function.

PERSON #1: Label the x -intercept.

PERSON #2: Label the y -intercept.



GIVEN:

$$f(x) = \frac{x^2 - 2x - 15}{x^2 + 2x - 3}$$

PERSON #1: Factor the function

PERSON #2: Find the x -intercept

PERSON #2: Check and initial: _____

PERSON #3: Check and initial: _____

PERSON #3: Find the y -intercept

PERSON #4: Find the horizontal asymptote

PERSON #4: Check and initial: _____

PERSON #1: Check and initial: _____

PERSON #1: Find the vertical asymptote

Person #2: Find the coordinates of the hole.

PERSON #3: Check and initial: _____

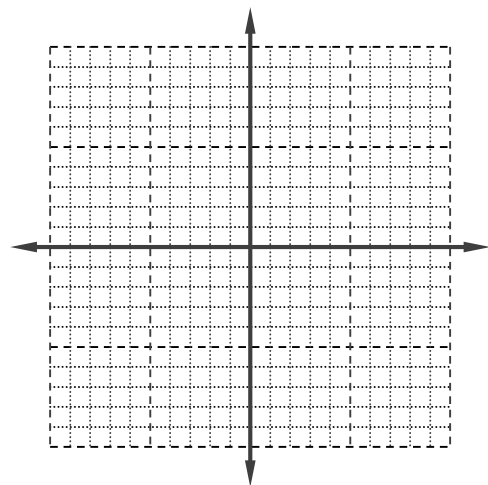
PERSON #4: Check and initial: _____

PERSON #3: Graph the asymptotes.

PERSON #4: Graph the function.

PERSON #1: Label the x -intercept.

PERSON #2: Label the y -intercept.



Key

GIVEN:

$$f(x) = \frac{x^2 + 2x - 8}{x^2 - x - 2}$$

PERSON #1: Factor the function

$$Y = \frac{(x+4)(\cancel{x-2})}{(\cancel{x-2})(x+1)}$$

PERSON #2: Find the x-intercept

$$Y = \frac{x+4}{x+1} \quad \underline{\underline{(-4, 0)}}$$

$$x+4 = 0$$

$$x = -4$$

PERSON #2: Check and initial: _____

PERSON #3: Check and initial: _____

PERSON #3: Find the y-intercept

$$Y = \frac{0+4}{0+1} \quad \underline{\underline{y=4}} \quad \underline{\underline{(0, 4)}}$$

PERSON #4: Find the horizontal asymptote

$$y = 1$$

PERSON #4: Check and initial: _____

PERSON #1: Check and initial: _____

PERSON #1: Find the vertical asymptote

$$\underline{\underline{x = -1}}$$

Person #2: Find the coordinates of the hole.

$$f(2) = \frac{2+4}{2+1} = \frac{6}{3}$$

$$(2, 2)$$

PERSON #3: Check and initial: _____

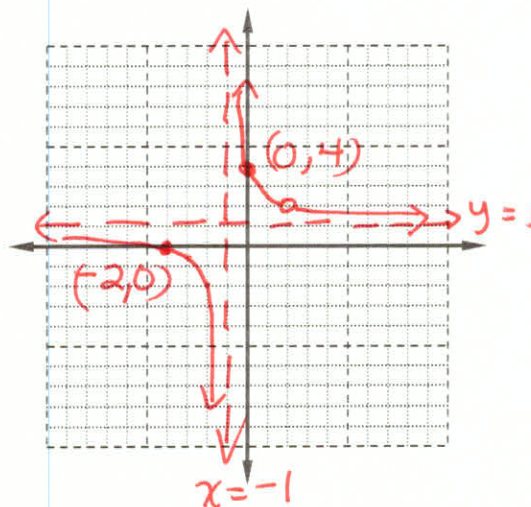
PERSON #4: Check and initial: _____

PERSON #3: Graph the asymptotes.

PERSON #4: Graph the function.

PERSON #1: Label the x-intercept.

PERSON #2: Label the y-intercept.



GIVEN:

$$f(x) = \frac{x^2 - 2x - 15}{x^2 + 2x - 3}$$

PERSON #1: Factor the function

$$y = \frac{(x-5)(\cancel{x+3})}{(\cancel{x+3})(x-1)}$$

PERSON #2: Check and initial: _____

PERSON #2: Find the x-intercept

$$y = \frac{x-5}{x-1} \quad (5, 0)$$

$$x-5=0$$

$$x=5$$

PERSON #3: Check and initial: _____

PERSON #3: Find the y-intercept

$$y = \frac{0-5}{0-1} \quad (0, 5)$$

$$y = 5$$

PERSON #4: Check and initial: _____

PERSON #4: Find the horizontal asymptote

$$y = 1$$

PERSON #1: Check and initial: _____

PERSON #1: Find the vertical asymptote

$$x = 1$$

PERSON #3: Check and initial: _____

Person #2: Find the coordinates of the hole.

$$y = \frac{-3-5}{-3-1} = \frac{-8}{-4}$$

$$y = 2 \quad (-3, 2)$$

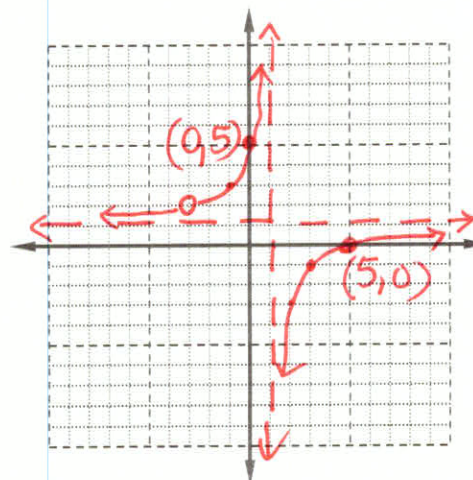
PERSON #4: Check and initial: _____

PERSON #3: Graph the asymptotes.

PERSON #4: Graph the function.

PERSON #1: Label the x-intercept.

PERSON #2: Label the y-intercept.



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