ALGEBRA 2
PROBLEM SET 01

DUE DATE: JANUARY 11, 2024

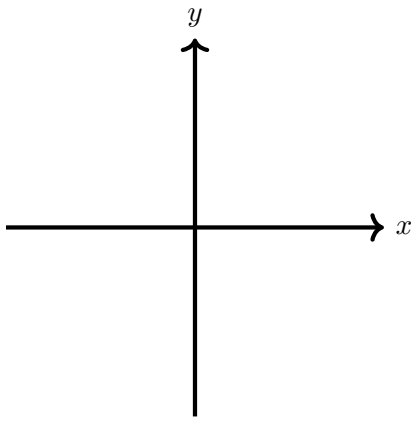
Question 1. Compute the x-intercepts, the vertical asymptotes, and horizontal asymptote for each of the following rational functions:

Function	**x-intercepts**	**Vertical Asymptotes**	**Horizontal Asymptotes**
$f(x) = \dfrac{2x-6}{(x+2)(x-1)}$			
$g(x) = \dfrac{(x+1)(x-23)}{x(x-2)}$			
$h(x) = \dfrac{2x+3}{(x-3)(x+3)}$			
$j(x) = \dfrac{4x^2}{x^2+9x-10}$			

Question 2. Create the sign chart for $f(x) = (x-3)(x+5)$.

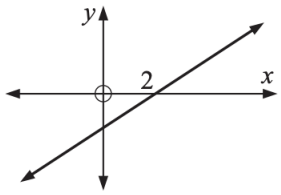
Question 3. Let $f(x) = \dfrac{x-3}{x+6}$. Find the

(1) Domain
(2) x-intercepts
(3) Vertical asymptotes
(4) Horizontal asymptotes
(5) (Challenge:) Graph using a sign chart!



Question 4. Draw the sign diagrams for each of the following graphs (use x-intercepts and vertical asymptotes).

a



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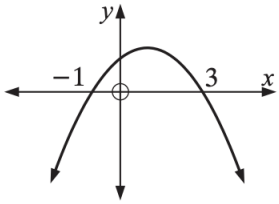

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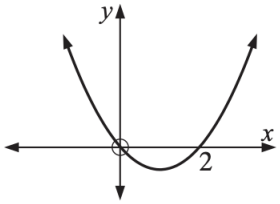

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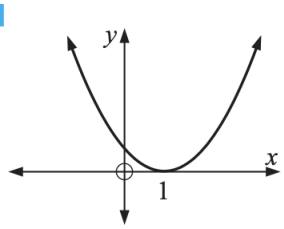

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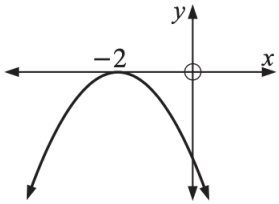

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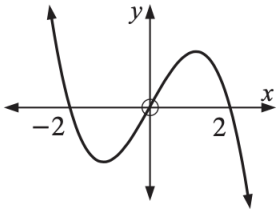

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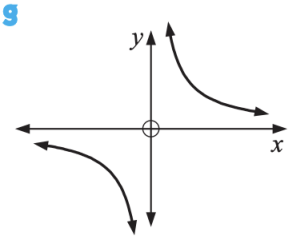

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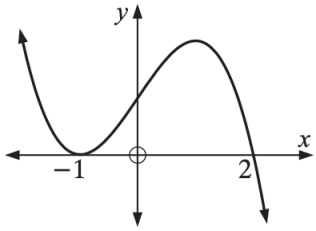

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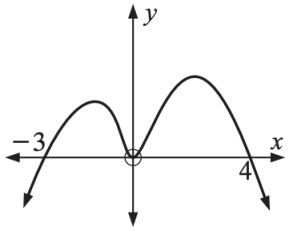

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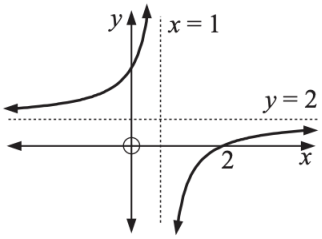

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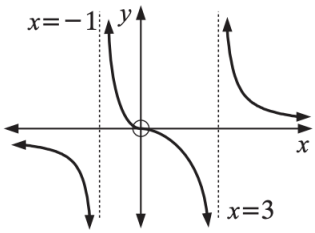

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