Integrated Math III **Name:** _____

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Unit 7 Test Study Guide

1. Perform the indicated operations. Be sure to indicate the excluded values and least common denominator when necessary.

A.) $\frac{x^2-25}{x^2+2x-15} \cdot \frac{3x^2-9x}{x+3}$

B.) $\frac{7x}{x^2-4x-12} + \frac{3}{x-6}$

C.) $\frac{x+3}{2x^3} - \frac{5}{8x^2}$

D.) $\frac{5xy^1}{x^2y^8} \div \frac{10xy^2}{6x^4y^5}$

E.) $\frac{x^2-6x+8}{x^2-8x+12}$

F.) $\frac{4x^2-16x}{x+8} \div \frac{x^2-x-12}{2x+16}$

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2. Solve the rational equations below. Determine any the excluded value(s).

A.) $\frac{-5}{x-7} = \frac{x}{x-3}$

B.) $\frac{x}{x-7} + \frac{3}{x+3} = \frac{x^2}{x^2-4x-21}$

3. Given the equations or graphs of the following rational functions, determine the indicated key features.

A.) $f(x) = \frac{x+3}{2x+5}$

Horizontal Asymptote:

Vertical Asymptote(s):

X-intercept(s):

Domain:

Range:

B.) $f(x) = \frac{x-5}{x^2+5x+4}$

Horizontal Asymptote:

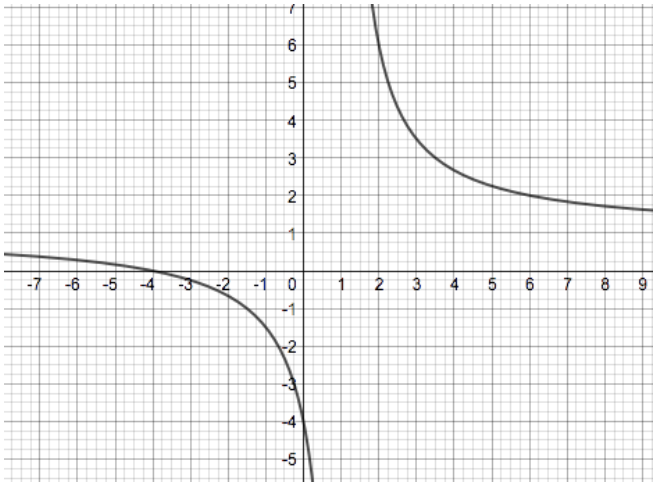
Vertical Asymptote(s):

X-intercept(s):

Domain:

Range:

C.)



Horizontal Asymptote:

Vertical Asymptote(s):

X-intercept(s):

Domain:

Range:

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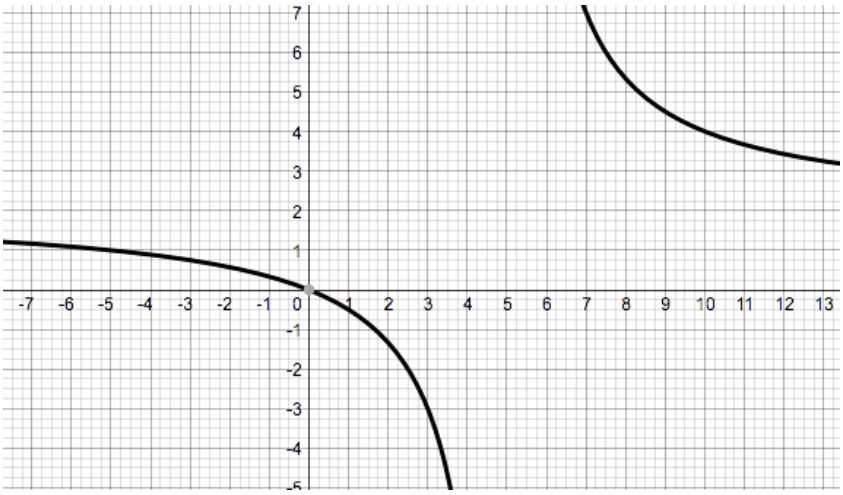
D.)



Horizontal Asymptote:

Vertical Asymptote(s):

X-intercept(s):

Domain:

Range:

4. Find the inverse for each of the following

A.) $f(x) = \frac{3}{2x-5}$

B.) $h(x) = \frac{2x+7}{3x-1}$

C.) $g(x) = \frac{x-3}{4x}$

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5. Write the equation of a rational function given the following characteristics:

A.) A vertical asymptote at 4, a horizontal asymptote at $y = \frac{9}{12}$, an x-intercept at $(7, 0)$.

B.) Excluded values of $x = 3$ and $x = -1$, a vertical asymptote at $x = 3$, an x intercept at $(6, 0)$ and a horizontal asymptote at $y = 1$.