MTH 161, Quiz #5, Spring 2021 Name KEY

Instructions: Show all work. Use exact answers unless otherwise asked to round.

1. Find any asymptotes (vertical, slant or horizontal), along with any intercepts of the function $R(x) = \frac{3x^2+x-4}{2x^2-5x}$. Use that information to sketch the graph of the function.

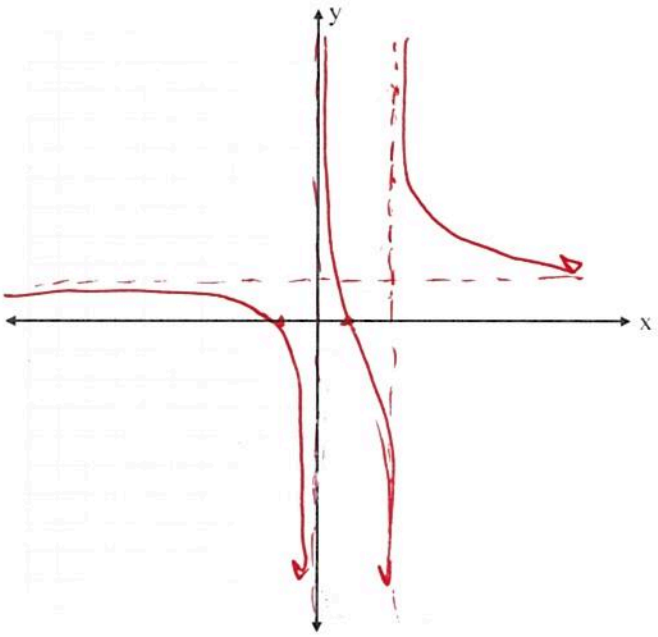
$x(2x-5)$ VA = $x=0, x=5/2$

$x=0 \quad x=5/2$

$(3x+4)(x-1)$ x-intercepts

$x=4/3, x=1$ $x=-4/3, x=1$

HA $y=\frac{3}{2}$ $\frac{3x^2}{2x^2}=\frac{3}{2}$



2. Find any asymptotes (vertical, slant or horizontal), along with any intercepts of the function $R(x) = \frac{x^3+1}{x^2-1}$. Use that information to sketch the graph of the function.

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

$x-1 \overline{)\, x^2-x+1}$ SA: $y=x$

$-x^2+x$ VA: $x=1$

$+1$

y-int $\frac{0+1}{0-1}=-1$