

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

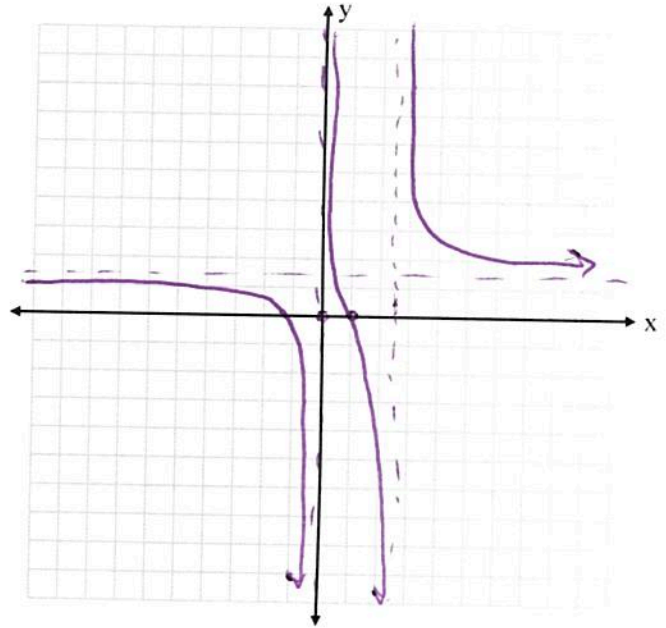
1. Find any asymptotes (vertical, slant or horizontal), along with any intercepts of the function

$R(x) = \frac{3x^2+x-4}{2x^2-5x}$. Use that information to sketch the graph of the function.

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

HA $y = 3/2$

$3x^2+x-4$
 $(3x+4)(x-1) = 0$
 $x = -4/3, x=1$



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.

$(x-1)(x+1)$
 $x = \pm 1$

$x^3+1 = (x+1)(x^2-x+1)$
 ~~$(x^2-1)(x-1)$~~

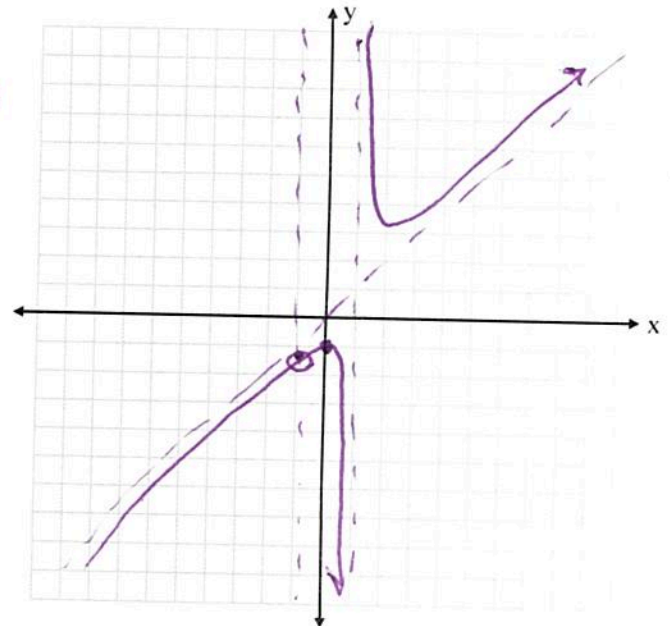
$x^2-1 \overline{) x^3+0x^2+0x+1}$
 $-x^3 \quad +x$
 $\hline x+1$

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

$R_2(x) = \frac{x^2-x+1}{x-1}$

$R_2(-1) = \frac{1+1+1}{-2} = -\frac{3}{2}$

$x = -1$
hole
 $x = 1$ VA
 $y = x$ SA



$(-1, -3/2)$

