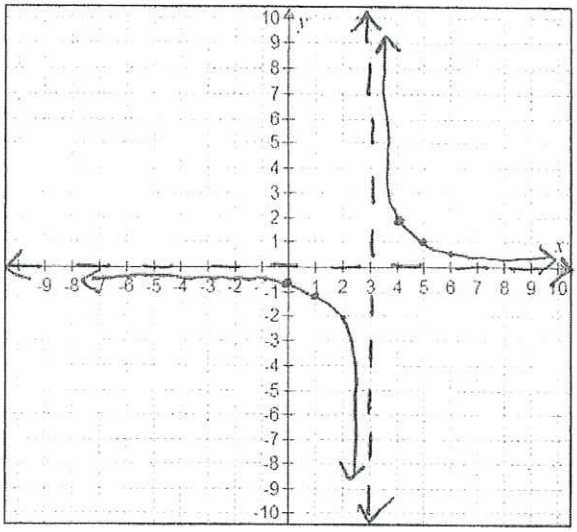
Rational Functions and Asymptotes

Name Key

1. $f(x)=\frac{2}{x-3}$ Domain $(-\infty,3)\cup(3,\infty)$



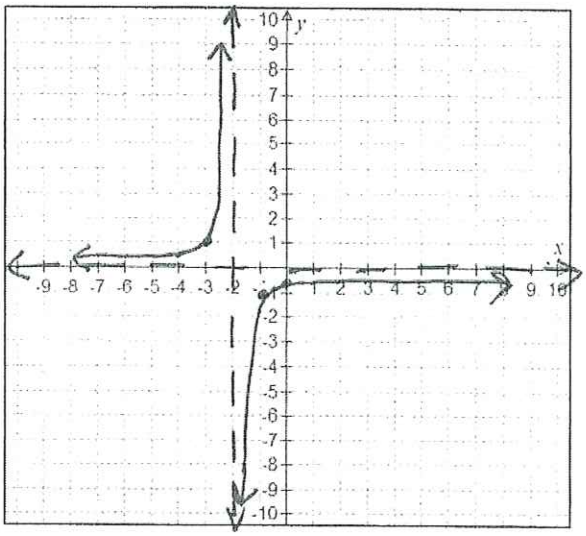
x-intercept: none

y-intercept: $(0,-2/3)$

V. A.: $x=3$

H. A. : $y=0$

2. $f(x)=\frac{-1}{x+2}$ Domain $(-\infty,-2)\cup(-2,\infty)$



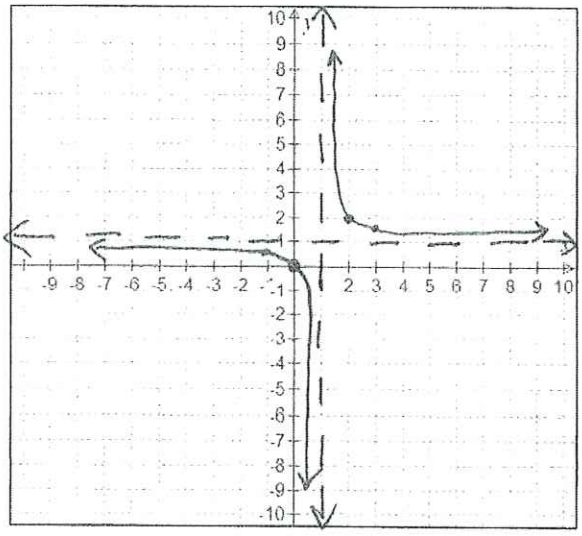
x-intercept: none

y-intercept: $(0,-1/2)$

V. A. $x=-2$

H. A. $y=0$

3. $f(x)=\frac{x}{x-1}$ Domain $(-\infty,1)\cup(1,\infty)$



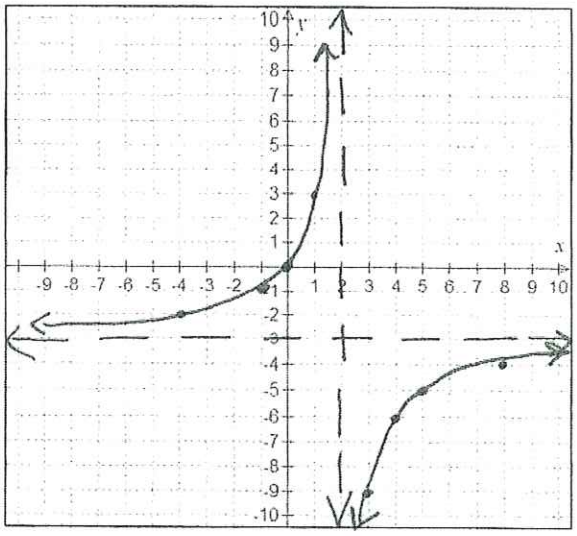
x-intercept: $(0,0)$

y-intercept: $(0,0)$

V. A.: $x=1$

H. A. : $y=1$

4. $f(x)=\frac{-3x}{x-2}$ Domain $(-\infty,2)\cup(2,\infty)$



x-intercept: $(0,0)$

y-intercept: $(0,0)$

V.A.: $x=2$

H.A.: $y=-3$

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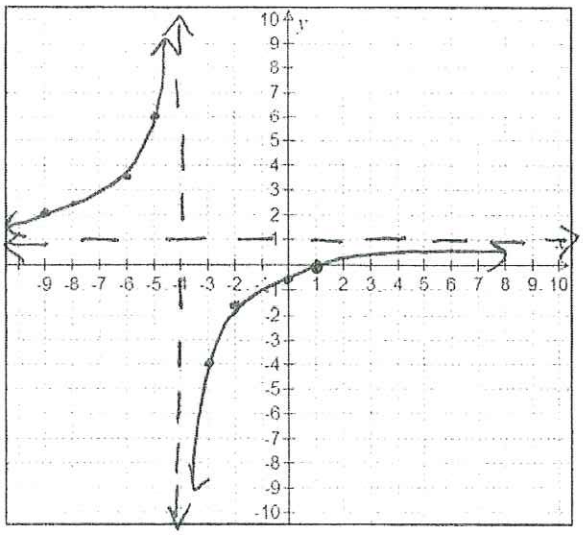
5. $f(x)=\dfrac{x-1}{x+4}$ Domain $(-\infty,-4)\cup(-4,\infty)$



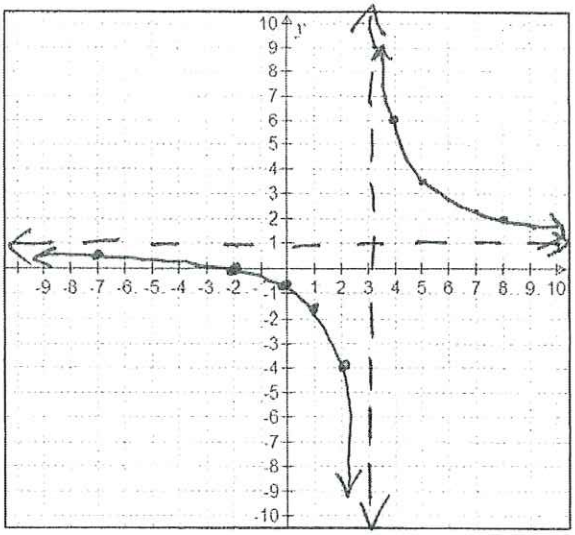
x-intercept: $(1,0)$

y-intercept: $(0,-1/4)$

V. A.: $x=-4$

H. A. : $y=1$

6. $f(x)=\dfrac{2+x}{x-3}$ Domain $(-\infty,3)\cup(3,\infty)$



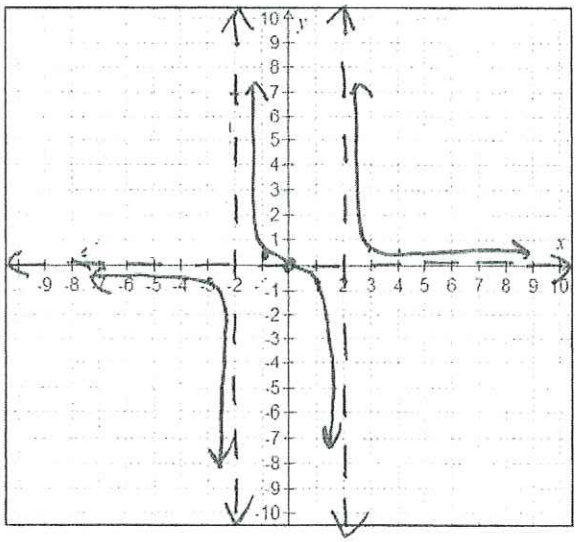
x-intercept: $(-2,0)$

y-intercept: $(0,-2/3)$

V. A.: $x=3$

H. A. : $y=1$

7. $f(x)=\dfrac{x}{x^2-4}$ Domain $(-\infty,-2)\cup(-2,2)\cup(2,\infty)$



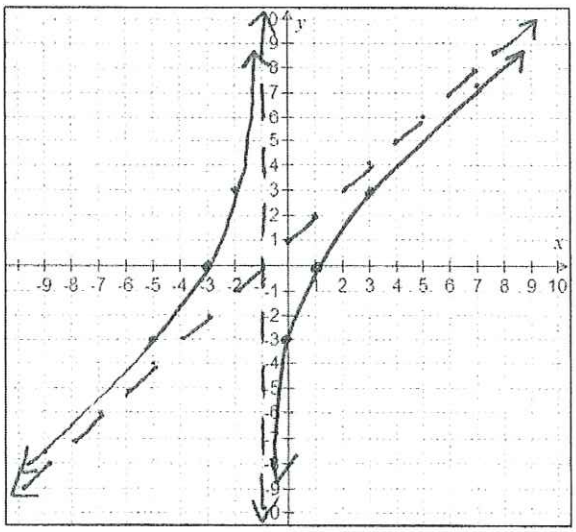
x-intercept: $(0,0)$

y-intercept: $(0,0)$

V. A.: $x=-2$ $x=2$

H. A. : $y=0$

8. $f(x)=\dfrac{x^2+2x-3}{x+1}$ $\dfrac{(x+3)(x-1)}{(x+1)}$



x-intercept: $(-3,0)$ $(1,0)$

y-intercept: $(0,-3)$

V.A.: $x=-1$

H.A.: none

S.A.: $y=x+1$

$-1\,|\,1\quad 2\quad -3$

$\quad\downarrow\quad -1\quad -1$

$\quad 1\quad 1\quad -4$

Jean Adams