Review 2.6-2.7 Name Key Period

Identify the x and y-intercept(s) (if any exist), the domain, the vertical asymptote(s), and the horizontal asymptote.

1. $f(x)=\frac{x+2}{x^2-9}$

D: $\mathbb{R}$ $x\neq 3, x\neq -3$
V.A: $x=3, x=-3$
H.A: $y=0$
$f(0)=-\frac{2}{9}$ $(0,-\frac{2}{9})$ y-int.
$x+2=0$ $x=-2$ $(-2,0)$ x-int.

2. $f(x)=\frac{3x-1}{x+2}$

D: $\mathbb{R}$ $x\neq -2$
V.A. $x=-2$
H.A. $y=3$
$f(0)=-\frac{1}{2}$ $(0,-\frac{1}{2})$ y-int
$3x-1=0$ $(\frac{1}{3},0)$ x-int.

3. $f(x)=\frac{7}{x-4}$

D: $\mathbb{R}$ $x\neq 4$
V.A. $x=4$
H.A. $y=0$
$f(0)=-\frac{7}{4}$ $(0,-\frac{7}{4})$
no x-int

4. $f(x)=\frac{x^2-4}{x^2-9}$

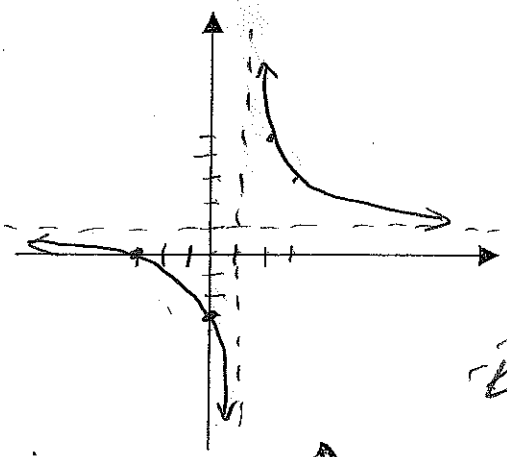
D: $\mathbb{R}$ $x\neq\pm 3$
$x=3, x=-3$ (V.A.)
$y=1$ (H.A)
y-int $(0,\frac{4}{9})$
x-int $x^2=4$ $(2,0),(-2,0)$

Identify the x and y-intercept(s), the domain, the vertical asymptote(s), the horizontal asymptote, and/or and the vertical asymptote (if any exist). Then sketch the graph (label!)

5. $f(x)=\frac{3+x}{x-1}$

D: $x\neq 1$
V.A. $x=1$
H.A. $y=1$
$(0,-3)$
$(-3,0)$

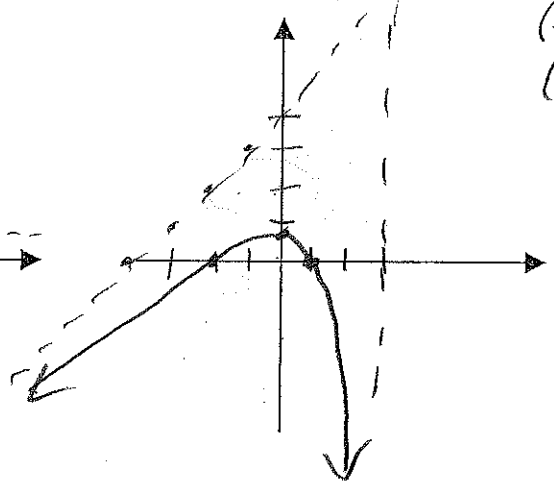
x	y
2	$\frac{5}{1}$
3	$\frac{6}{2}=3$

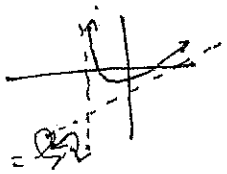


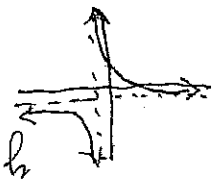
6. $f(x)=\frac{x^2+x-2}{x-3}$ $(x+2)(x-1)$

D: $\mathbb{R}$, $x\neq 3$
V.A. $x=3$
H.A. none
$(-2,0)$ $(1,0)$
$(0,\frac{2}{3})$

$$\begin{array}{r} x+4 \\ x-3\overline{)\,x^2+x-2} \\ \underline{x^2-3x} \\ 4x-2 \\ \underline{4x-12} \end{array}$$







① $(-2,0)$ $y=0$
$x\neq\pm 3$
$(0,-\frac{2}{9})$

② $(\frac{1}{3},0)$ (2)
$y=3$
$x\neq -2$
$(0,-\frac{1}{2})$

③ None
$y=0$
$x=4$
$x\neq 4$
$(0,-\frac{1}{4})$

④ $(-2,0)(2,0)$
$y=1$
$x\neq\pm 3$
$(0,\frac{4}{9})$

⑤ $(-3,0)$
$y=1$
$x\neq 1$
$(0,-3)$

⑥ $(-2,0)(1,0)$
$x=3$
$x\neq 3$
$(0,\frac{2}{3})$

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

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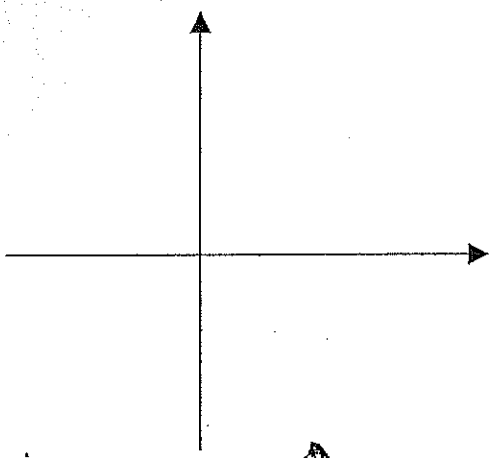
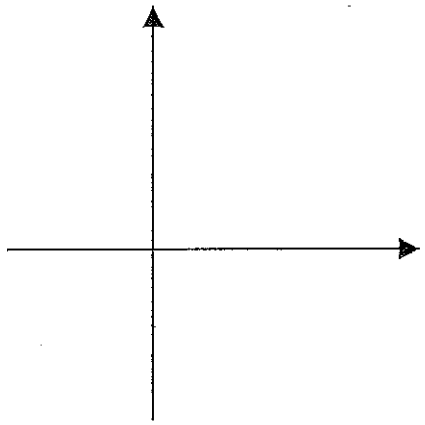
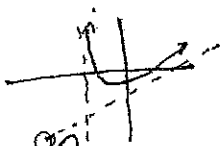
Identify the x and y-intercept(s), the domain, the vertical asymptote(s), the horizontal asymptote, and/or and the vertical asymptote (if any exist). Then sketch the graph (label!)

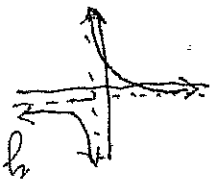
5. $f(x)=\dfrac{3+x}{x-1}$

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









① $(-2,0)$ $y=0$ $x\neq\pm3$ $(0,-\frac{2}{9})$

② $(\frac{1}{3},0)$ $y=3$ $x\neq-2$ $x\neq-2$ $(0,-\frac{1}{2})$

③ None $y=0$ $x=4$ $x\neq4$ $(0,-\frac{7}{4})$

④ $(-2,0)(2,0)$ $y=1$ $x=\pm3$ $x\neq\pm3$ $(0,\frac{4}{9})$

⑤ $(-3,0)$ $y=1$ $x=1$ $1\neq x$ $(0,-3)$

⑥ $(-2,0)(1,0)$ $y=x+1$ $x=3$ $x\neq3$ $(0,\frac{2}{3})$