Answers: (Please note that the headings on the chart are in a different order.)

Domain	Holes	Horiz.A	*y*-int	VA	*x*-intercepts
$(-\infty,-3)\cup(-3,5)\cup(5,\infty)$	none	$y=0$	$\left(0,-\frac{2}{15}\right)$	$x=5$ $x=-3$	None
$(-\infty,3)\cup(3,\infty)$	none	$y=1$	$\left(0,-\frac{1}{3}\right)$	$x=3$	$(-1,0)$
$(-\infty,6)\cup(6,\infty)$	none	None	$(0,0)$	$x=6$	$(0,0)$ $(-2,0)$
$(-\infty,-1)\cup(-1,\infty)$	none	$y=-7$	$(0,-4)$	$x=-1$	$\left(-\frac{4}{7},0\right)$
$(-\infty,-2)\cup(-2,-1)\cup(-1,\infty)$	$(-2,4)$	$y=1$	$(0,-2)$	$x=-1$	$(2,0)$

6. $\frac{7(y-4)}{6(y+4)}$
7. $x+8$
8. $\frac{5(x+1)^2}{36(x+2)}$
9. $\frac{x+2}{x-2}$
10. $\frac{x}{3}$
11. $\frac{3(y-2)}{2(y+6)}$
12. $\frac{4x+1}{(x+5)(x-2)(x+1)}$
13. $\frac{3}{x+2}$
14. $\frac{3x^2+9x-14}{(x-2)(x+2)}$
15. $\frac{x+6}{5x^2}$
16. $\frac{-x^2+3x+7}{(x+1)(x-1)}$
17. $\frac{x-3}{(x+3)(x+1)}$
18. $\frac{x(x-10)}{6(2x+1)}$
19. $\frac{80}{x-27}$
20. $\frac{x+5}{x}$
21. 41
22. -2
23. 6
24. $-5,\ 4$
25. -9
26. $-8,\ 1$
30. $f(x)=\frac{2x}{(x-5)(x+2)}$
31. $f(x)=\frac{2x^2}{x+3}$

#27-29 + 36-37 are on other sheet

32. $\frac{21}{10}$ hrs
33. 8 km/h
34. 7.5 min
35. 400 mph

For the following rational function, determine the equations of all asymptotes, gi… …cation of any holes, determine the x and y intercepts, and give the domain of the function. If "n… …, say "none". Asymptotes should be equations and holes/intercepts should be given as points.

27. $f(x)=\frac{x-5}{x^2-25}$

Vert: $x=-5$

Horiz: $y=0$

Holes: $(5, \frac{1}{10})$

x-int: none

y-int: $(0, \frac{1}{5})$

domain: $(-\infty,-5)\cup(-5,5)\cup(5,\infty)$

28. $f(x)=\frac{15x^2-7x-2}{x^2-4}$

Vert: $x=2$ $x=-2$

Horiz: $y=15$

Holes: none

x-int: $(\frac{2}{3},0)$ $(-\frac{1}{5},0)$

y-int: $(0, \frac{1}{2})$

domain: $(-\infty,-2)\cup(-2,2)\cup(2,\infty)$

29. $f(x)=\frac{x^2-16}{x-2}$ $(x-4)(x+4)$

Vert: $x=2$

Horiz: none

Holes: none

x-int: $(4,0)$ $(-4,0)$

y-int: $(0,8)$

domain: $(-\infty,2)\cup(2,\infty)$

$$\frac{(3x-2)(5x+1)}{(x-2)(x+2)}$$

Graph each of the following. State both the vertical and horizontal asymptote, domain and range (in interval notation), roots and y-intercepts.

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

Vert Asymptote: $x=-2$

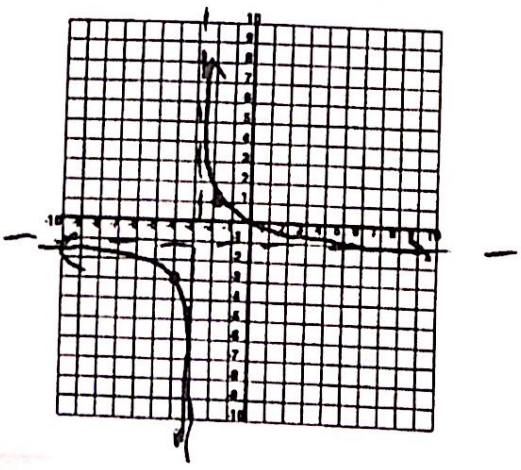
Horiz Asymptote: $y=-1$

Domain: $(-\infty,-2)\cup(-2,\infty)$

Range: $(-\infty,-1)\cup(-1,\infty)$

Roots: $(0,0)$

y-intercept: $(0,0)$



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

Vert. Asymptote: $x=3$

Horiz. Asymptote: $y=2$

Domain: $(-\infty,3)\cup(3,\infty)$

Range: $(-\infty,2)\cup(2,\infty)$

Roots: $(\frac{7}{2},0)$

y-intercept: $(0,\frac{7}{3})$