

# Extra Practice

9.3

Name \_\_\_\_\_

**\* DO 18-21 on the Back**

In 1-4, find the domain of the function (the values of  $x$  for which the denominator is not zero).

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

2.  $f(x) = \frac{x+4}{x+6}$

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

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

In 5-8, set the denominator equal to zero to find the vertical asymptote(s) of the graph of the function.

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

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

7.  $f(x) = \frac{x+1}{x^2-4}$

8.  $f(x) = \frac{x}{x^2-4x-12}$

In 9-12, compare the degree of the numerator to the degree of the denominator to find the horizontal asymptote of the graph of the function.

9.  $f(x) = \frac{1}{x+6}$

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

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

12.  $f(x) = \frac{x^2+5}{2x^2-x-1}$

In 13 and 14, complete the table of values.

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

$y = (x-3)/(x+1)$

14.  $f(x) = \frac{x}{x-2}$

**Auto ASK** ← table setup  
 $y = x/(x-2)$

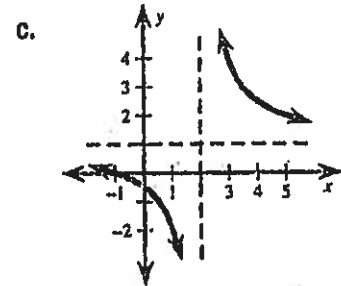
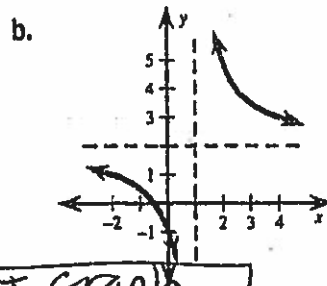
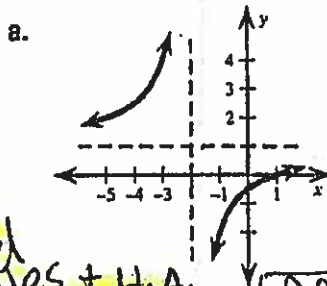
x	-2	-1.5	-1.25	-0.75	-0.5	0	x	1	1.5	1.75	2.25	2.5	3
f(x)							f(x)						

In 15-17, match the function with its graph.

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

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

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



**Find V.A., holes + H.A.**

**DO NOT Graph**

In 18-21, use asymptotes and a table of values to sketch the graph of the function.

18.  $f(x) = \frac{x+1}{x}$

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

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

21.  $f(x) = \frac{x^2-1}{x^2-4}$

D. C. Heath and Company

**Sports Banquet** In 22-24, use the following information.

You are organizing your high school's sports banquet. The banquet hall rental is \$250. In addition to this one-time charge, the meal will cost \$7 per person. Let  $x$  represent the number of people who attend.

22. Write an equation that represents the total cost,  $C$ .

23. Write an equation that represents the average cost,  $A$ , per person.

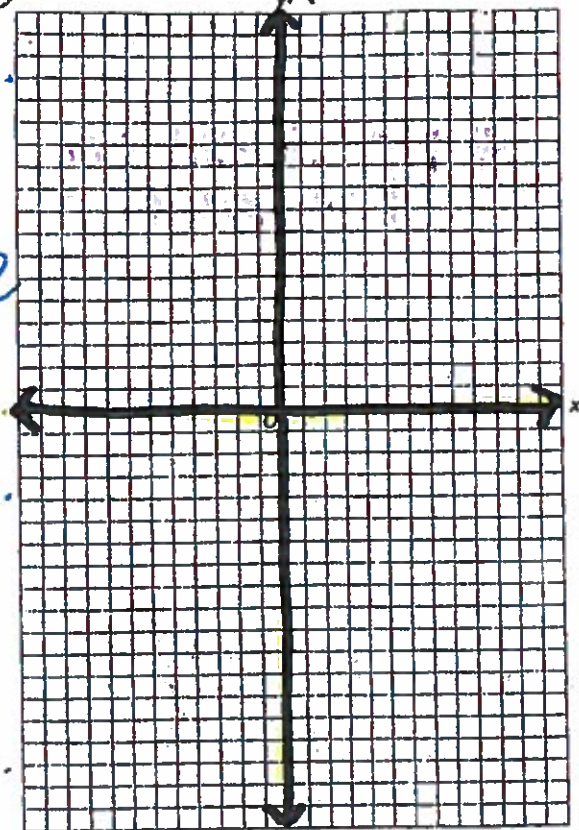
24. Sketch the graph of the equation in Exercise 23.

$$(18) f(x) = \frac{x+1}{x}$$

V.A.

Hole

H.A.



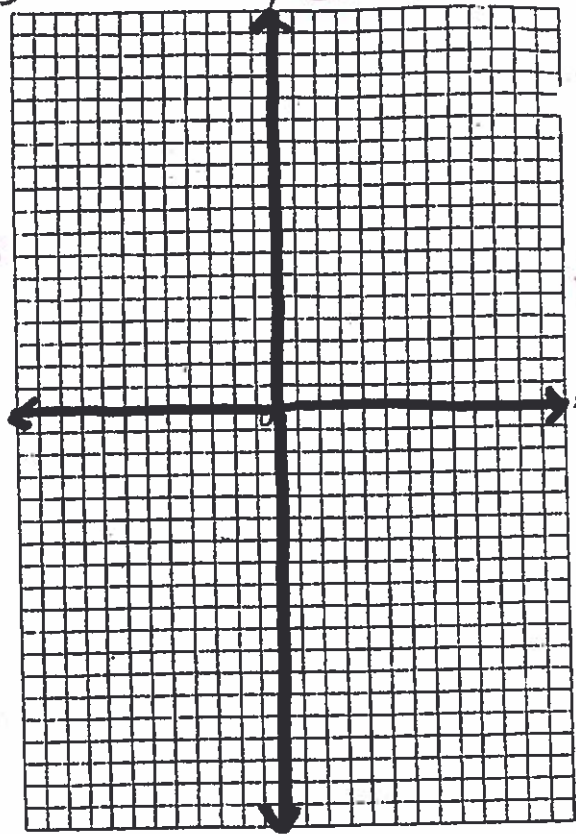
Don't forget to draw the asymptotes

$$(19) f(x) = \frac{3}{x-2}$$

V.A.

Holes

H.A.

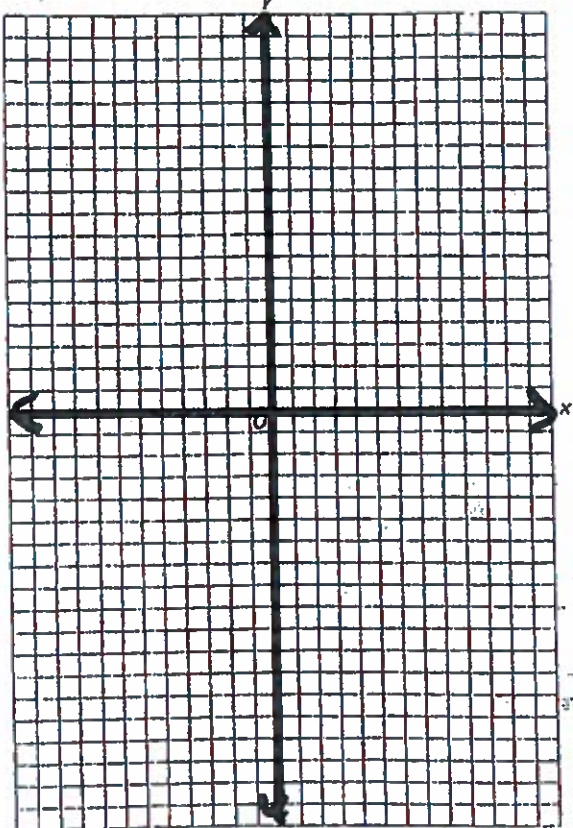


$$(20) f(x) = \frac{x}{x^2-1}$$

V.A.

Hole

H.A.



$$(21) f(x) = \frac{x^2-1}{x^2-4}$$

V.A.

Hole

H.A.

