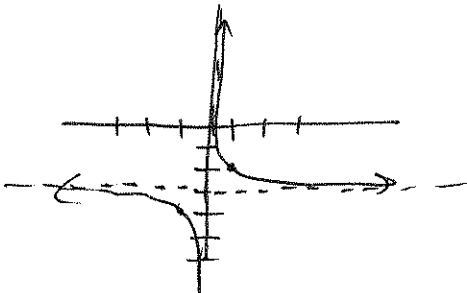
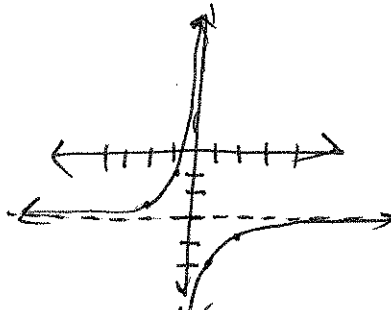


Sketch the graph of each equation.

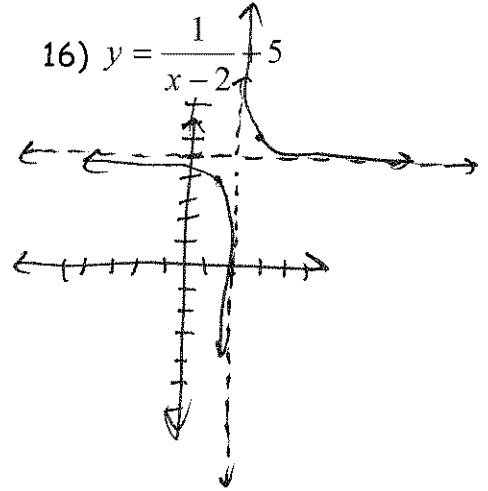
14)  $y = \frac{1}{x} - 3$



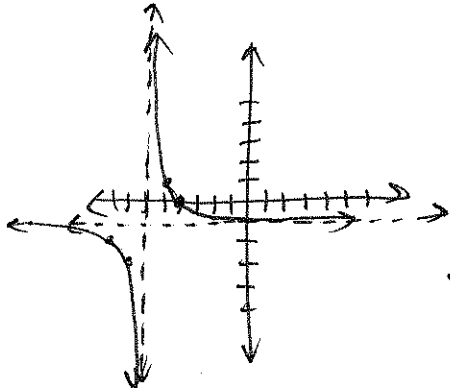
15)  $y = \frac{-2}{x} - 3$



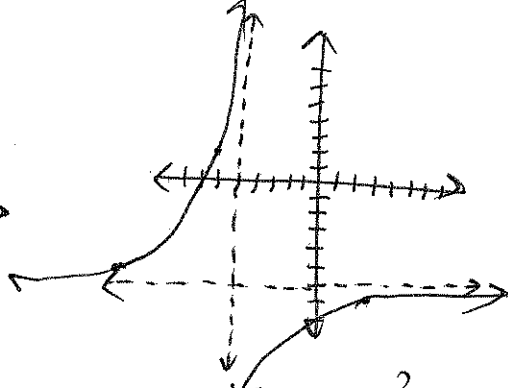
16)  $y = \frac{1}{x-2} + 5$



18)  $y = \frac{2}{x+6} - 1$



21)  $y = \frac{-8}{x+5} - 6$



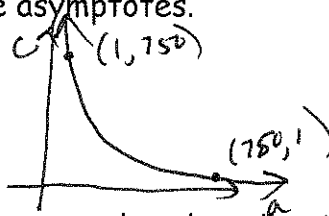
Write an equation for the translation of  $y = \frac{2}{x}$  that has the given asymptotes.

24)  $x = 4$  and  $y = -8$

$$y = \frac{2}{x-4} - 8$$

25) a. **Budgeting** A high school spends \$750 each year on student academic achievement awards. The amount spent per award depends on how many awards are given. Write and graph a function of the number  $a$  of awards given and the cost  $c$  of each award. Find the asymptotes.

$$c = \frac{750}{a}$$



A:  
 $x = 0$   
 $y = 0$

b. Explain how the asymptotes are related to the given facts.

As  $a$  increases,  $c$  decreases, but cost will never become \$0 per award. The number of awards given cannot be less than one, so the largest cost per award is \$750

Write each equation in the form  $y = \frac{k}{x}$ .

27)  $y = \frac{1}{2x} = \frac{1}{2} \cdot \frac{1}{x}$

$y = \frac{\frac{1}{2}}{x}$

28)  $y = \frac{3}{4x} = \frac{3}{4} \cdot \frac{1}{x}$

$y = \frac{\frac{3}{4}}{x}$

31)  $3xy = 12$

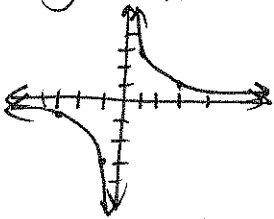
$y = \frac{12}{3x} = \frac{4}{x}$

$y = \frac{4}{x}$

Sketch the graph of each function.

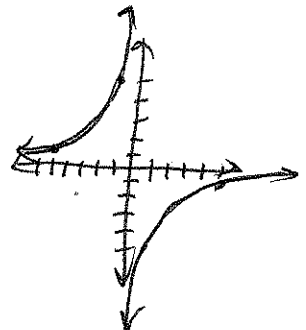
33)  $xy = 3$

$y = \frac{3}{x}$



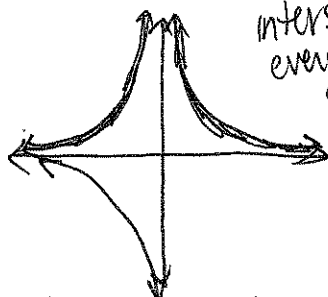
34)  $xy + 5 = 0$

$xy = -5$   
 $y = \frac{-5}{x}$



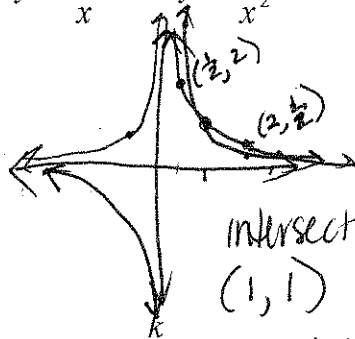
Compare each pair of graphs and find any points of intersection.

48)  $y = \frac{1}{x}$  and  $y = \frac{1}{|x|}$



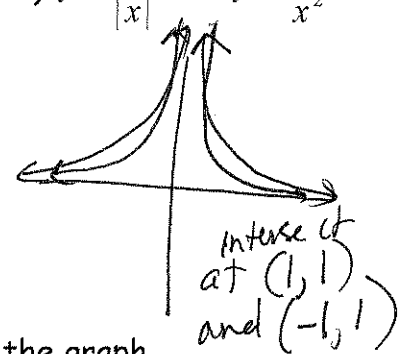
intersect everywhere on  $(0, \infty)$

49)  $y = \frac{1}{x}$  and  $y = \frac{1}{x^2}$



intersect at  $(1, 1)$

50)  $y = \frac{1}{x}$  and  $y = \frac{1}{x^2}$

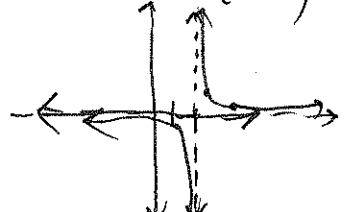


intersect at  $(1, 1)$  and  $(-1, 1)$

52) Write each equation in the form  $y = \frac{k}{x-b} + c$ , and sketch the graph.

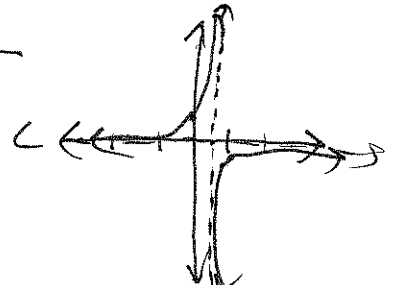
a.  $y = \frac{2}{3x-6}$

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

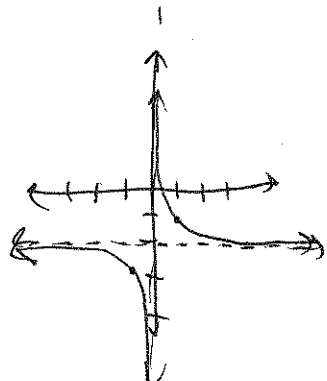


b.  $y = \frac{1}{2-4x} = \frac{1}{-4x+2} = \frac{1}{-4(x-\frac{1}{2})}$

$y = \frac{-\frac{1}{4}}{x-\frac{1}{2}}$



c.  $xy + 2x = 1$   
 $x(y+2) = 1$   
 $y+2 = \frac{1}{x}$   
 $y = \frac{1}{x} - 2$



d.  $xy - y = 1$   
 $y(x-1) = 1$   
 $y = \frac{1}{x-1}$

