

Name: \_\_\_\_\_

Show work needed to justify your answer.

Date: \_\_\_\_\_

HW: # 15: Math IBSL - Standard 15 -Transforming the Reciprocal Function

5 points



You should not use your GDC for questions 1, 2 and 3.

- 1 Identify the horizontal and vertical asymptotes of these functions, and state the range and domain.

d  $y = \frac{5x^0}{1x^0 + 5}$

H.A.:  $y = 0$

V.A.:  $x = -5$

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

R:  $(-\infty, 0) \cup (0, \infty)$

e  $y = \frac{12}{x+1} + 2\frac{(x+1)}{x+1}$

$y = \frac{2x+14}{x+1}$

H.A.:  $y = 2$

V.A.:  $x = -1$

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

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

h  $y = \frac{-4}{x-4} - 4\frac{(x-4)}{x-4}$

$y = \frac{-4x+12}{x-4}$

H.A.:  $y = -4$

V.A.:  $x = 4$

D:  $(-\infty, 4) \cup (4, \infty)$

R:  $(-\infty, -4) \cup (-4, \infty)$

- 2 Sketch the graph of each function. Show the asymptotes as dotted lines and state the domain and range.

b  $y = \frac{-1}{x+4}$

H.A.:  $y = 0$

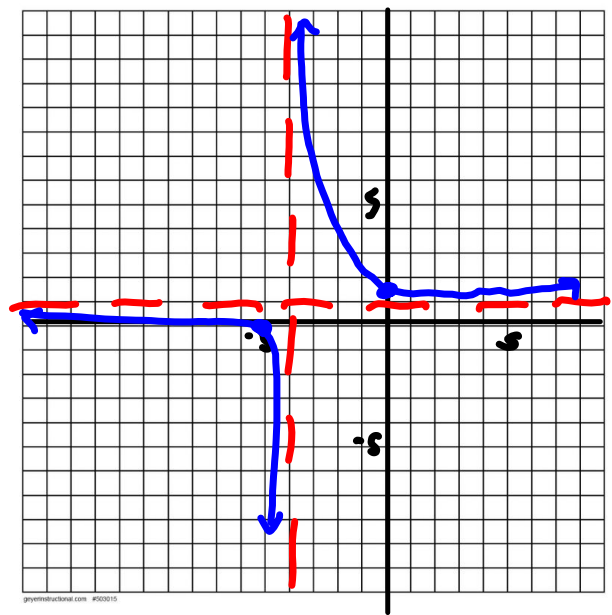
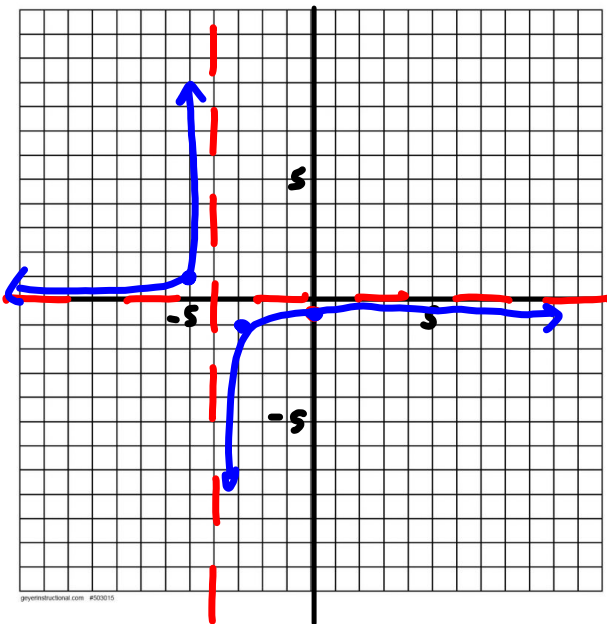
V.A.:  $x = -4$

c  $y = \frac{1}{x+4} + 1\frac{(x+4)}{x+4}$

$y = \frac{x+5}{x+4}$

H.A.:  $y = 1$

V.A.:  $x = -4$



Name: \_\_\_\_\_

Show work needed to justify your answer.

Date: \_\_\_\_\_

HW: # 15: Math IBSL - Standard 15 -Transforming the Reciprocal Function

5 points

3 Each function is a transformation  $y = \frac{1}{x}$ .

Match the function with its graph. Explain your reasoning and then describe the transformation.

ii a  $y = \frac{1}{x-2}$  H.A:  $y=0$   
V.A:  $x=2$       b  $y = \frac{-1}{x-2}$  V

c  $y = \frac{1}{x-2} + \frac{2(x-2)}{x-2}$  y =  $\frac{2x-3}{x-2}$       d  $y = \frac{1}{x-2} - \frac{2(x-2)}{(x-2)}$  y =  $\frac{-2x+4}{x-2}$   
H.A  $y = -2$

e  $y = \frac{3}{x-2}$

