

GSE Algebra II – Unit 4C Review  
Rational Functions

Name \_\_\_\_\_  
Date \_\_\_\_\_ Day \_\_\_\_\_

Answer all the blanks and draw the graph.

1.  $f(x) = \frac{2}{x+8}$

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Vertical Asymptote: \_\_\_\_\_

Horizontal Asymptote: \_\_\_\_\_

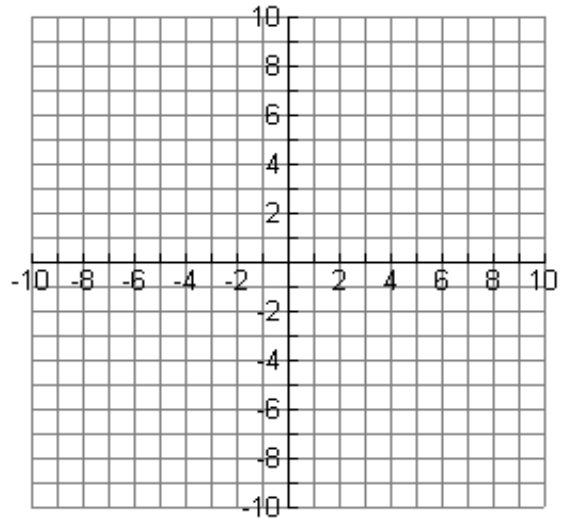
Slant Asymptote: \_\_\_\_\_

Holes: \_\_\_\_\_

x-int: \_\_\_\_\_ y-int: \_\_\_\_\_

INC: \_\_\_\_\_

DEC: \_\_\_\_\_



2.  $f(x) = \frac{2x^2 + 4x}{x^2 + 7x + 10}$

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Vertical Asymptote: \_\_\_\_\_

Horizontal Asymptote: \_\_\_\_\_

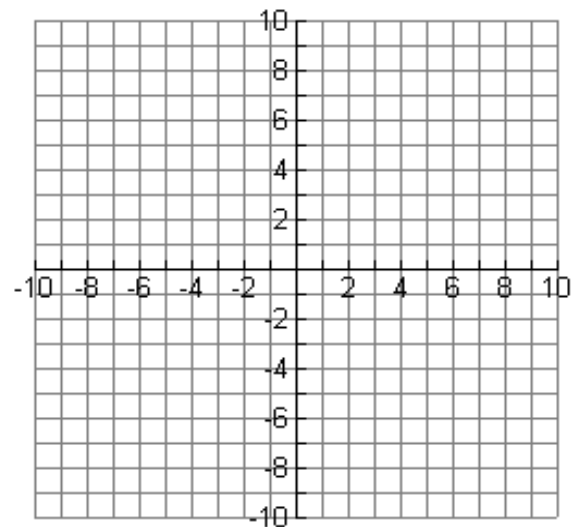
Slant Asymptote: \_\_\_\_\_

Holes: \_\_\_\_\_

x-int: \_\_\_\_\_ y-int: \_\_\_\_\_

INC: \_\_\_\_\_

DEC: \_\_\_\_\_



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

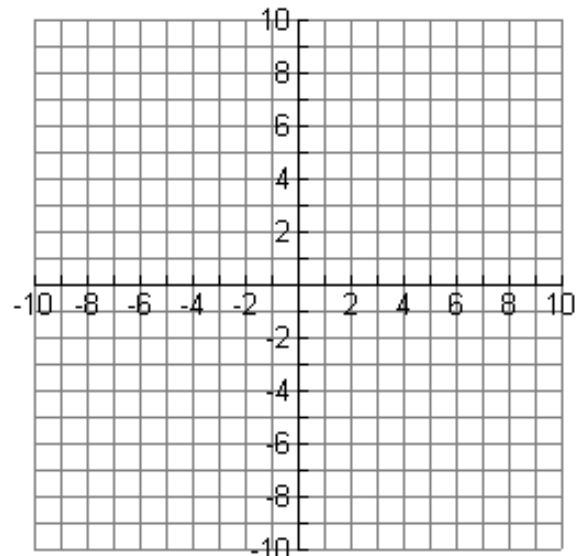
Vertical Asymptote: \_\_\_\_\_

Horizontal Asymptote: \_\_\_\_\_

Slant Asymptote: \_\_\_\_\_

Holes: \_\_\_\_\_

x-int: \_\_\_\_\_ y-int: \_\_\_\_\_



GSE Algebra II – Unit 4C Review  
Rational Functions

Name \_\_\_\_\_  
Date \_\_\_\_\_ Day \_\_\_\_\_

4.  $f(x) = \frac{x^2 - x - 20}{x^2 - 25}$

Domain: \_\_\_\_\_

Range: \_\_\_\_\_

Vertical Asymptote: \_\_\_\_\_

Horizontal Asymptote: \_\_\_\_\_

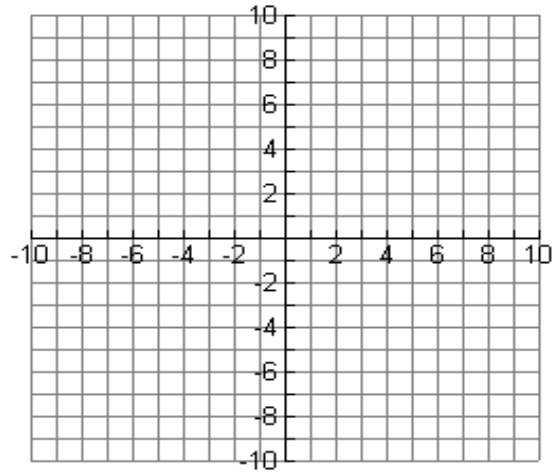
Slant Asymptote: \_\_\_\_\_

Holes: \_\_\_\_\_

x-int: \_\_\_\_\_ y-int: \_\_\_\_\_

INC: \_\_\_\_\_

DEC: \_\_\_\_\_



5. Can rational functions have Horizontal Asymptotes and Slant Asymptotes?

6. Can rational functions have Horizontal Asymptotes and Vertical Asymptotes?

7. Find all the Asymptotes of  $g(x) = \frac{x^2 - 2x + 5}{x + 2}$

VA: \_\_\_\_\_

HA: \_\_\_\_\_

Slant: \_\_\_\_\_

8. What is the x-intercept and y-intercept for  $h(x) = \frac{2x^2 + 11x + 10}{x^2 - 3x + 2}$

x-int: \_\_\_\_\_

y-int: \_\_\_\_\_

9. Does  $f(x) = \frac{x^2 - 3x - 10}{x^2 - 25}$  have a hole? \_\_\_\_\_

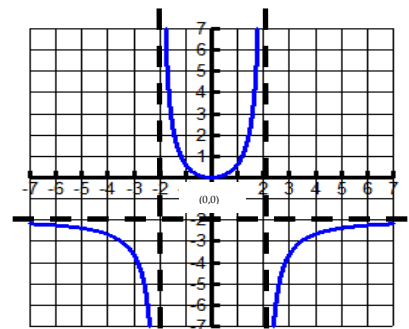
If so, what is the hole? \_\_\_\_\_

(include the y-value)

10. Find **horizontal** and **vertical** asymptotes of the rational function, Find the x and y intercepts

HA: \_\_\_\_\_ VA: \_\_\_\_\_

x-int: \_\_\_\_\_ y-int: \_\_\_\_\_



11. Find all asymptotes, x-intercepts, y-intercept, domain, and range

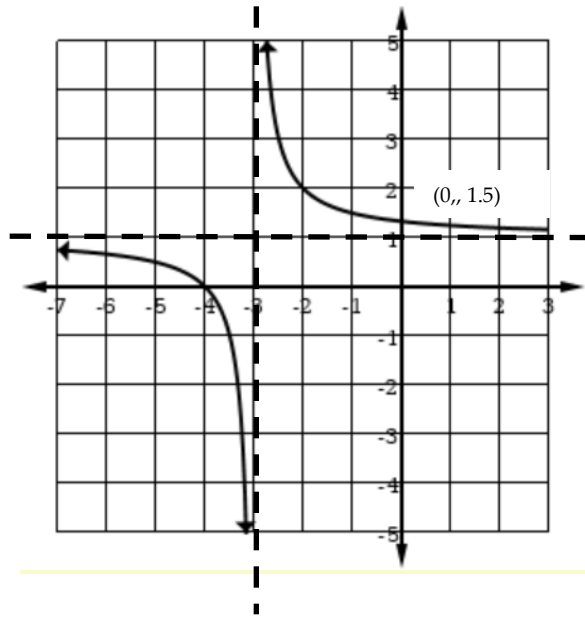
VA \_\_\_\_\_

HA \_\_\_\_\_

x-int \_\_\_\_\_ y-int \_\_\_\_\_

Domain: \_\_\_\_\_

Range: \_\_\_\_\_



12. Write a rational function with vertical asymptotes at  $x = 2$  and  $x = \frac{3}{2}$  and horizontal asymptote at  $y = -2$ .

13. Write a rational function with no vertical asymptote and a horizontal asymptote at  $y = 0$ .

14. Write a rational function with vertical asymptotes at  $x = -3$ ,  $x = 0$  and horizontal asymptote at  $y = 2$ .

15. Given  $g(x) = \frac{x^2 - 16}{2x^2 - 8x}$ , A. explain what is occurring at  $x = 4$ ? B. What are the asymptotes?

A) \_\_\_\_\_ B) VA \_\_\_\_\_ HA \_\_\_\_\_ SA \_\_\_\_\_

