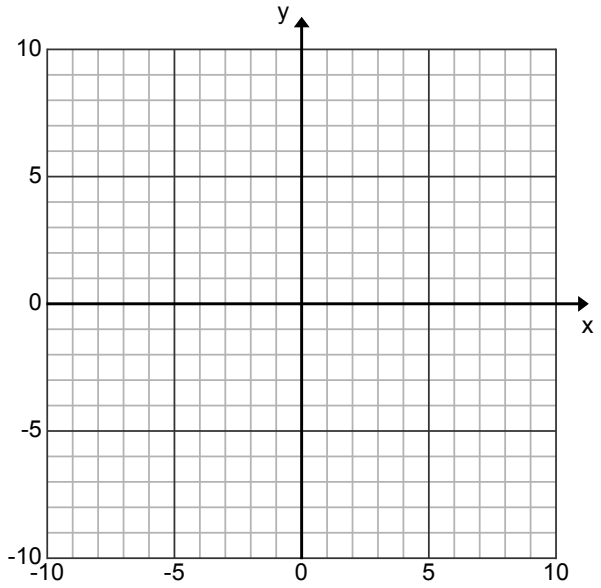
2.6-2.6 SCRABBLE Review

1. Find all asymptotes of the function $f(x)=\dfrac{x^2-2x-35}{x^2+5x}$. Describe the end behavior, as well as the behavior around the asymptotes. Then, graph the function.



V.A.:

H.A.:

S.A.:

R.D:

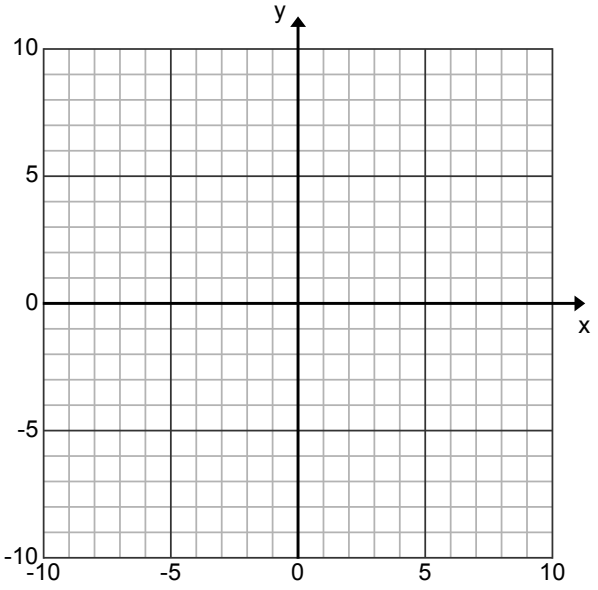
x-intercept(s):

y-intercept:

End Behavior:

Behavior around V.A.:

2. Find all asymptotes of the function $f(x)=\dfrac{x-4}{x^2-x-12}$. Describe the end behavior, as well as the behavior around the asymptotes. Then, graph the function.



V.A.:

H.A.:

S.A.:

R.D:

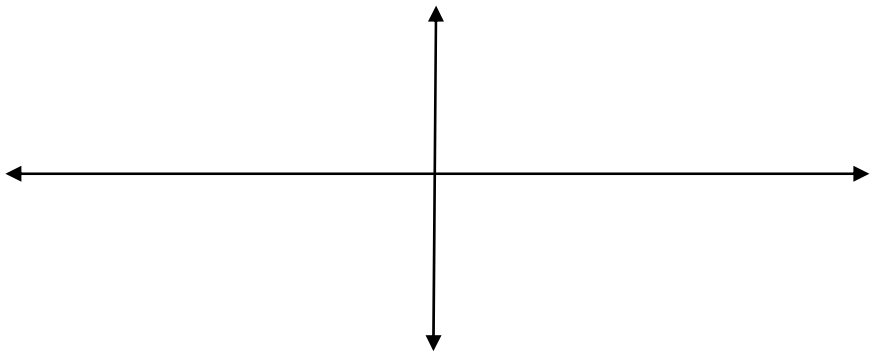
x-intercept(s):

y-intercept:

End Behavior:

Behavior around V.A.:

3. Suppose that $\lim_{x\to 2^+} f(x) = -\infty, \lim_{x\to 2^-} f(x) = \infty, \lim_{x\to\infty} f(x) = 1, \lim_{x\to-\infty} f(x) = 1$. Sketch f(x).



4. Solve the rational equation. Check for extraneous solutions.

a. $\frac{x-2}{x-1} = \frac{x+2}{x+4}$

b. $\frac{4}{x-2} + \frac{x+8}{x+3} = 1$

c. $\frac{x-1}{x+2} + 1 = \frac{x-2}{x+1}$

d. $\frac{2x+1}{x-2} - \frac{x}{x+2} = \frac{20}{x^2-4}$

5. Solve the inequality. Provide your answer in interval notation.

a. $\frac{x^2-3x}{x^2+2x-15} < 0$

b. $\frac{x+1}{2x^2+x-15} \geq 0$

c. $2x^2|5x+1| > 0$

d. $\frac{3x^2+11x-4}{\sqrt{x-1}} \leq 0$