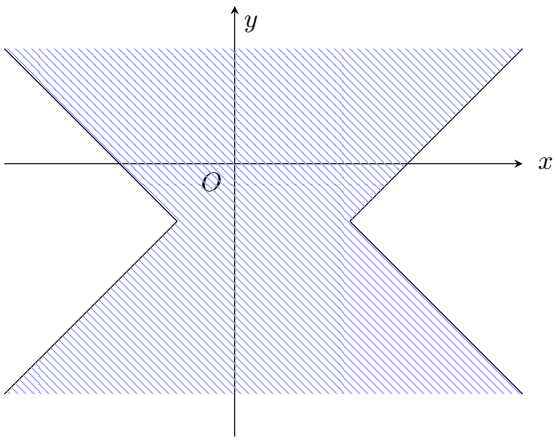
P3 Assignment Solution

Assignment 1.

1. (a) $(-\infty, -\frac{1}{5}] \cup [1, \infty)$
   (b) $(-\frac{3}{4}, -\frac{1}{2})$
2. 3 or $\frac{-1-\sqrt{41}}{2}$.
3. (a) $a = \frac{5}{3}$, $b = -\frac{2}{3}$
   (b) $\frac{8}{3}x + \frac{16}{3}$
4. (a) $k = -15$
   (b) $(-\infty, 1) \cup (2, \infty)$
5. The region is as follows:



Assignment 2.

1. $1 - \frac{3}{8}x - \frac{37}{128}x^2 + \frac{57}{1024}x^3 \cdots$
2. (a) omit
   (b) $\frac{1}{2} + \frac{1}{16}x^2 + \frac{7}{256}x^4 + \cdots$
3. (a) $a = 2$
   (b) $-\frac{105}{64}$
4. (a) $f(x) = \frac{\frac{1}{4}}{x+1} + \frac{\frac{3}{4}}{x-1} + \frac{\frac{1}{2}}{(x-1)^2}$
   (b) $x^2 + x^3 + 2x^4$
5. $\frac{27}{16}$, no terms in the expansion of $\left(1 + \frac{1}{3}x\right)^{\frac{1}{2}}$ has the term $x^{-\frac{5}{2}}$