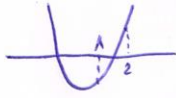


1.23
1

② $mx^2 + (m+1)x + m - 3 = 0$

$m \neq 0$ (m ≠ 0)



$x^2 + \frac{m+1}{m}x + \frac{m-3}{m} = 0$ (x^2 + \frac{m+1}{m}x + \frac{m-3}{m} = 0)

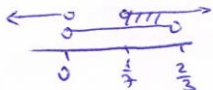
$f(1) < 0$ ② $f(2) > 0$ ① (m > 0)

① $0 < f(2) = 4 + \frac{m+1}{m} \cdot 2 + \frac{m-3}{m} = \frac{4m + 2m + 2 + m - 3}{m} = \frac{7m - 1}{m}$

$m < 0$ // $m > \frac{1}{7}$

② $0 > f(1) = 1 + \frac{m+1}{m} + \frac{m-3}{m} = \frac{3m - 2}{m}$

$0 < m < \frac{2}{3}$



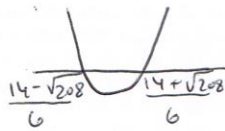
$\frac{1}{7} < m < \frac{2}{3}$

③ $0 \leq \Delta = (m+1)^2 - 4m(m-3)$

$0 \leq m^2 + 2m + 1 - 4m^2 + 12m$

$3m^2 - 10m - 1 \leq 0$

$\frac{14 - \sqrt{208}}{6} \leq m \leq \frac{14 + \sqrt{208}}{6}$



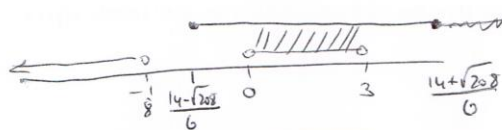
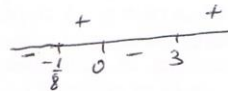
$x_1 \cdot x_2 = \frac{m-3}{m}$

$x_1 + x_2 = -\frac{m+1}{m}$

$0 > \frac{x_1 \cdot x_2}{1 + x_1^2 + x_2^2} = \frac{x_1 \cdot x_2}{1 + (x_1 + x_2)^2 - 2x_1 \cdot x_2} = \frac{\frac{m-3}{m}}{1 + (-\frac{m+1}{m})^2 - 2\frac{m-3}{m}} =$

$0 > \frac{\frac{m-3}{m}}{1 + \frac{m^2 + 2m + 1}{m^2} - \frac{2m-6}{m}} = \frac{\frac{m-3}{m}}{\frac{m^2 + m^2 + 2m + 1 - 2m^2 + 6m}{m^2}} = \frac{(m-3)m}{8m+1}$

$m < -\frac{1}{8}$ // $0 < m < 3$



$0 < m < 3$