10. $f(x) = \dfrac{x}{x-3}$ $[1,8]$

$x-3=0$

DISC: $x=3$ NON-REMOVABLE

CONT: $x \neq 3$

$(-\infty, 3) \cup (3, \infty)$

11. $f(x) = \dfrac{x+1}{x^2+10x+9}$ $[-10,0]$

$x^2+10x+9=0$

$(x+1)(x+9)=0$ PSD

$x+1=0$ $x+9=0$

$x=-1$ $x=-9$ DISC.

REMOVABLE NON-REMOVABLE

$= \dfrac{\cancel{x+1}}{(\cancel{x+1})(x+9)}$

$= \dfrac{1}{x+9}$

CONT: $x \neq -1$ $x \neq -9$

$(-\infty, -9) \cup (-9, -1) \cup (-1, \infty)$

12. $f(x) = \dfrac{7x^2-x}{x-3}$

DISC: $x-3=0$

$x=3$

CONT: $x \neq 3$

$(-\infty, 3) \cup (3, \infty)$

13. $f(x) = \begin{cases} x^2+1, & x \leq 0 \\ 3x+2, & x > 0 \end{cases}$

① NO DISC.

② $x=0$ $x=0$

x^2+1 $3x+2$

$(0)^2+1$ $3(0)+2$

1 2

NOT EQUAL

So

DISC AT $x=0$

CONT: $x \neq 0$

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