WARMUP

Follow steps from yesterday for:

$$y = \frac{x^2-2x-3}{x^2+2x-15} = \frac{(x-3)(x+1)}{(x-3)(x+5)}$$

↑ $x=3 \Rightarrow$ hole

STEP 1: Desmos

STEP 2: $x^2+2x-15=0$

$(x+5)(x-3)=0$

$x=-5 \quad x=3$

$(-\infty,-5) \cup (-5,3) \cup (3,\infty)$

STEP 3: $y = \frac{x+1}{x+5}$

STEP 4: x-int: $x+1=0$, $x=-1$, $(-1,0)$

y-int: $\frac{0+1}{0+5} = \frac{1}{5}$, $(0,\frac{1}{5})$

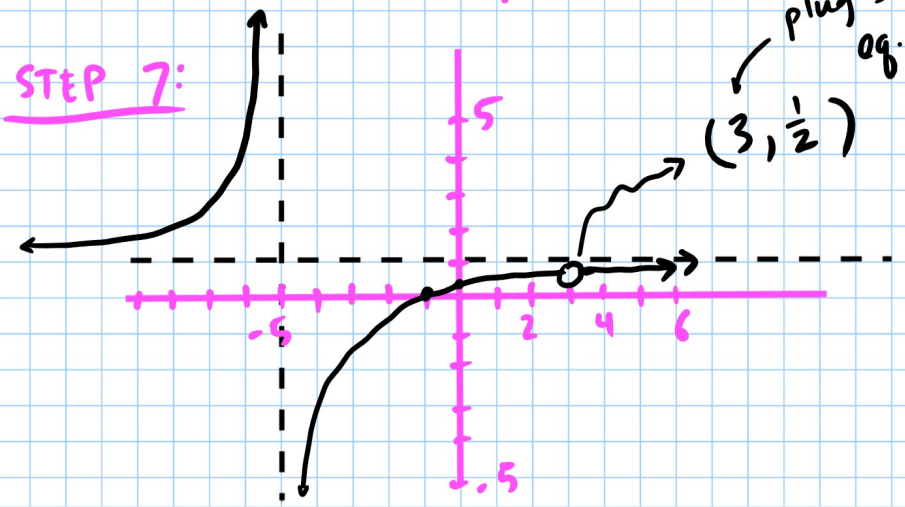
STEP 5: $x+5=0$

V.A. $x=-5$

STEP 6: deg of top = deg of bot

$y = \frac{1}{1} = 1$ is H.A.

STEP 7:



$(3,\frac{1}{2})$

plug 3 into simplified eq. to find y coord of the hole

$\frac{3+1}{3+5} = \frac{4}{8} = \frac{1}{2}$

p234 6, 12, 19, 32

Follow steps

6) $R(x) = \frac{6}{x^2 - x - 6}$

12) $R(x) = \frac{x^2 + x - 12}{x^2 - 4}$

19) $F(x) = \frac{x^2 - 3x - 4}{x + 2}$

32) $R(x) = \frac{x^2 + x - 30}{x + 6}$