Name: _____ **Show work needed to justify your answer.** Date: _____

HW: # 16: Math IBSL - Standard 16 -Rational Functions [f(x) = (ax+b)/(cx+d)] 5 points

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1 For each function, find the equations of the horizontal and vertical asymptotes, then write down the domain and range.

b $y = \dfrac{2x+3}{x+1}$

H.A. $y=2$

V.A. $x=-1$

D: $(-\infty,-1) \cup (-1,\infty)$

R: $(-\infty,2) \cup (2,\infty)$

d $y = \dfrac{2-3x}{5-4x}$

H.A. $y=\frac{3}{4}$

V.A. $x=\frac{5}{4}$

D: $(-\infty,\frac{5}{4}) \cup (\frac{5}{4},\infty)$

R: $(-\infty,\frac{3}{4}) \cup (\frac{3}{4},\infty)$

e $y = \dfrac{9x-2}{6-3x}$

H.A. $y=-3$

V.A. $x=2$

D: $(-\infty,2) \cup (2,\infty)$

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

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5 Solve:

a $\dfrac{5}{2x} + \dfrac{(x+7)}{x+4} = 2$ $\quad (2x(x+4))$

$\dfrac{5x+20+2x^2+14x}{2x(x+4)} = \dfrac{2}{1}$

$\dfrac{2x^2+19x+20}{2x^2+8x} = \dfrac{2}{1}$

$4x^2+16x = 2x^2+19x+20$

$2x^2-3x-20=0$

$(2x+5)(x-4)=0$

$x=-\frac{5}{2}$ $\quad x=4$

d $\dfrac{x+5}{x+8} = 1 + \dfrac{6}{x+1}$ $\quad (x+1)$

$\dfrac{x+5}{x+8} = \dfrac{x+1+6}{x+1}$

$(x+5)(x+1) = (x+8)(x+7)$

$x^2+6x+5 = x^2+15x+56$

$-51 = 9x$

$x=-\frac{51}{9}$ or $-\frac{17}{3}$

Name: _____ **Show work needed to justify your answer.** Date: _____

HW: # 16: Math IBSL - Standard 16 -Rational Functions [f(x) = (ax+b)/(cx+d)] 5 points

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2 Match these equations to their graphs and give reasons for your answer.

H.A. $y=0$
V.A $x=0$

a $y=\frac{4}{x}$

b $y=\frac{x-3}{x+2}$

H.A. $y=1$
V.A $x=-2$

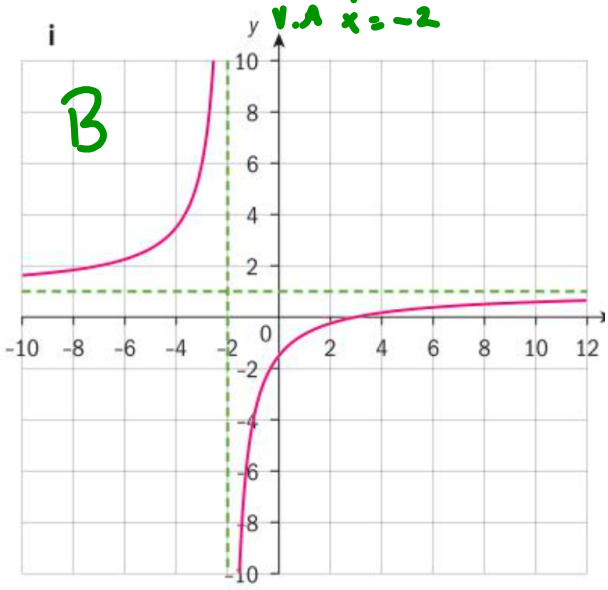
c $y=\frac{2x-3}{x+2}$

H.A $y=2$
V.A $x=-2$

d $y=\frac{3-2x}{x+2}$

H.A $y=-2$
V.A $x=-2$

i



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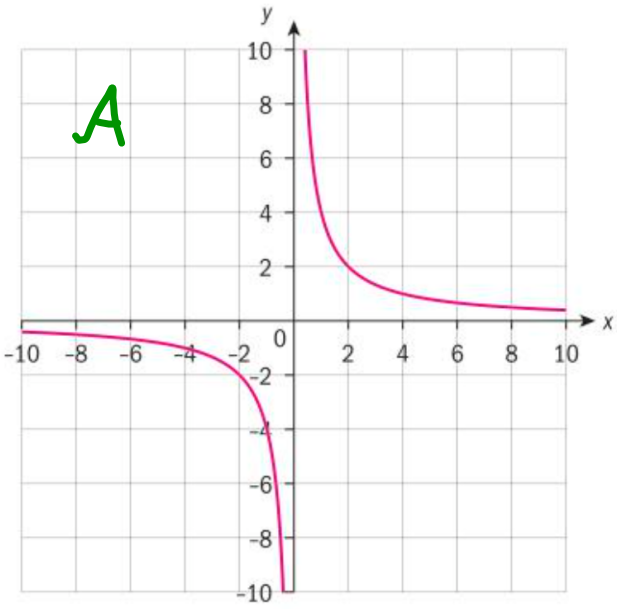
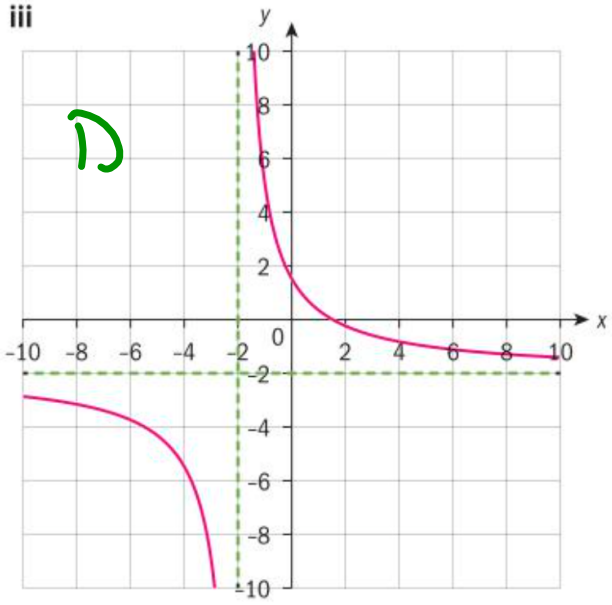


iii



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