GRAPHING RATIONAL ALGEBRAIC FRACTIONS

1 The asymptotes of $y = \dfrac{1}{x+2}$ are:

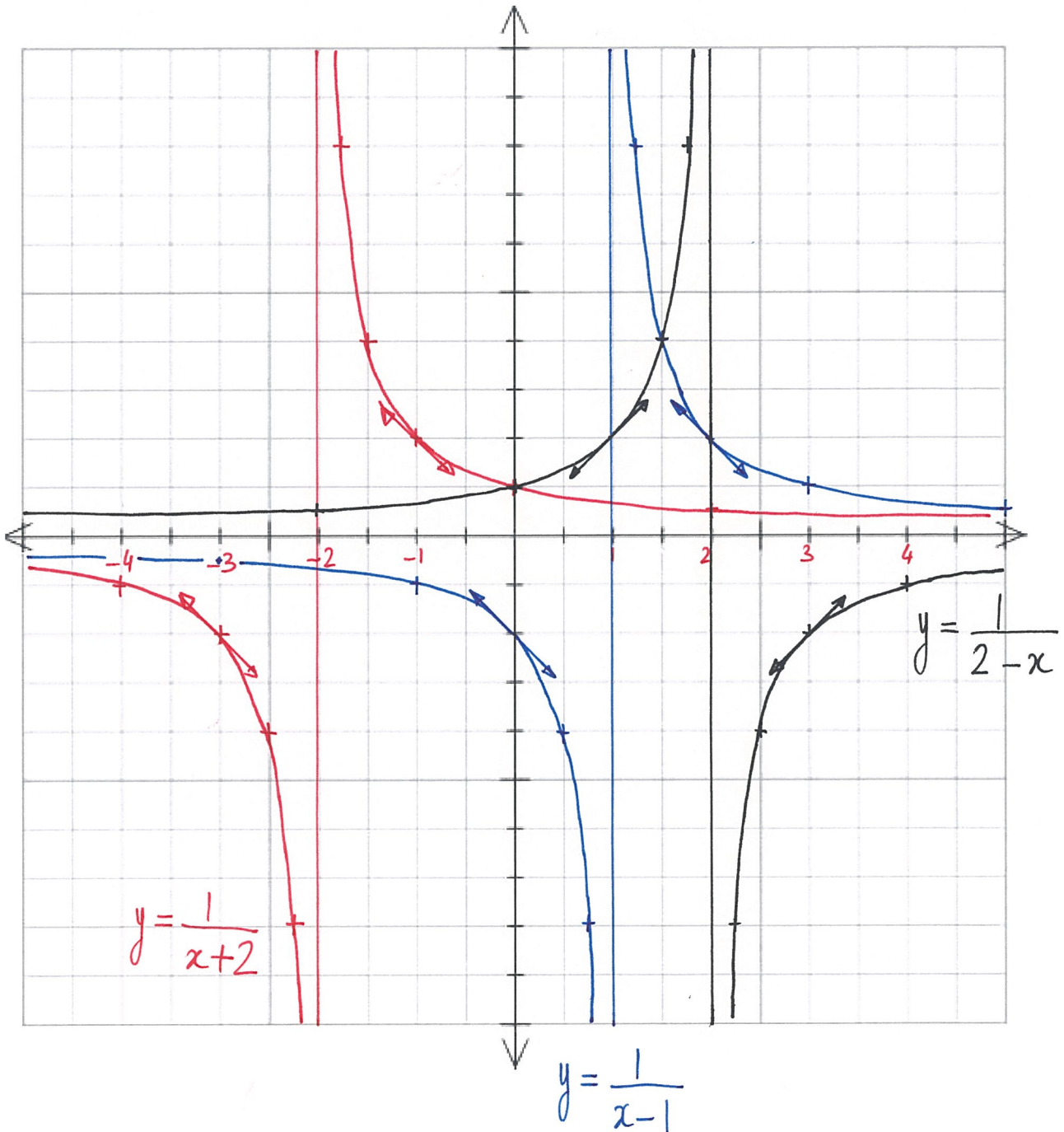**A** $y=0$ and $x=-2$ **B** $y=0$ and $x=2$ **C** $x=0$ and $y=-2$ **D** $x=0$ and $y=2$

2 Sketch the graph of each function. For what values of x is the curve concave down? State the range of each function.

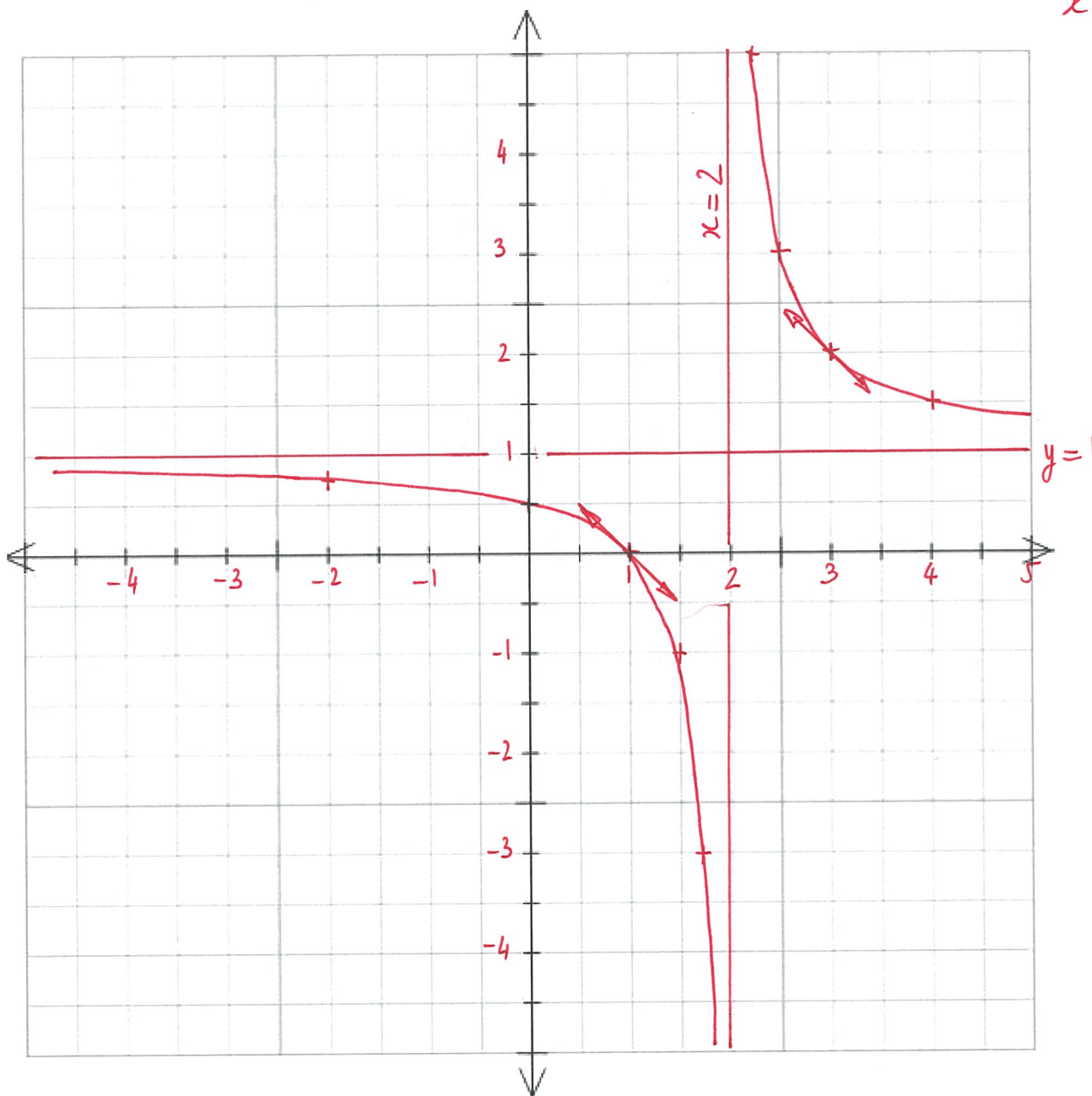(a) $y = \dfrac{1}{x+2}$ (b) $y = \dfrac{1}{x-1}$ (c) $y = \dfrac{1}{2-x}$

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

$y = \dfrac{1}{x-1}$

$y = \dfrac{1}{2-x}$

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3 (a) Show that the function $y = \dfrac{x-1}{x-2}$ can be written as $y = 1 + \dfrac{1}{x-2}$.

$$\frac{x-1}{x-2} = \frac{x-2+1}{x-2}$$

$$= 1 + \frac{1}{x-2}$$

(b) Hence sketch the graph of $y = \dfrac{x-1}{x-2}$, showing all the asymptotes.

$x = 2$

$y = 1$

5 For the function given in the sketch, state whether each statement below is correct or incorrect.

(a) The horizontal asymptote is $y = 2$.   TRUE

(b) The curve is continuous.   FALSE

(c) The curve is concave up for $x > 0$.   TRUE

(d) The equation of the function is $y = 2 + \dfrac{1}{x}$.   TRUE

(1,3)

(−1,1)