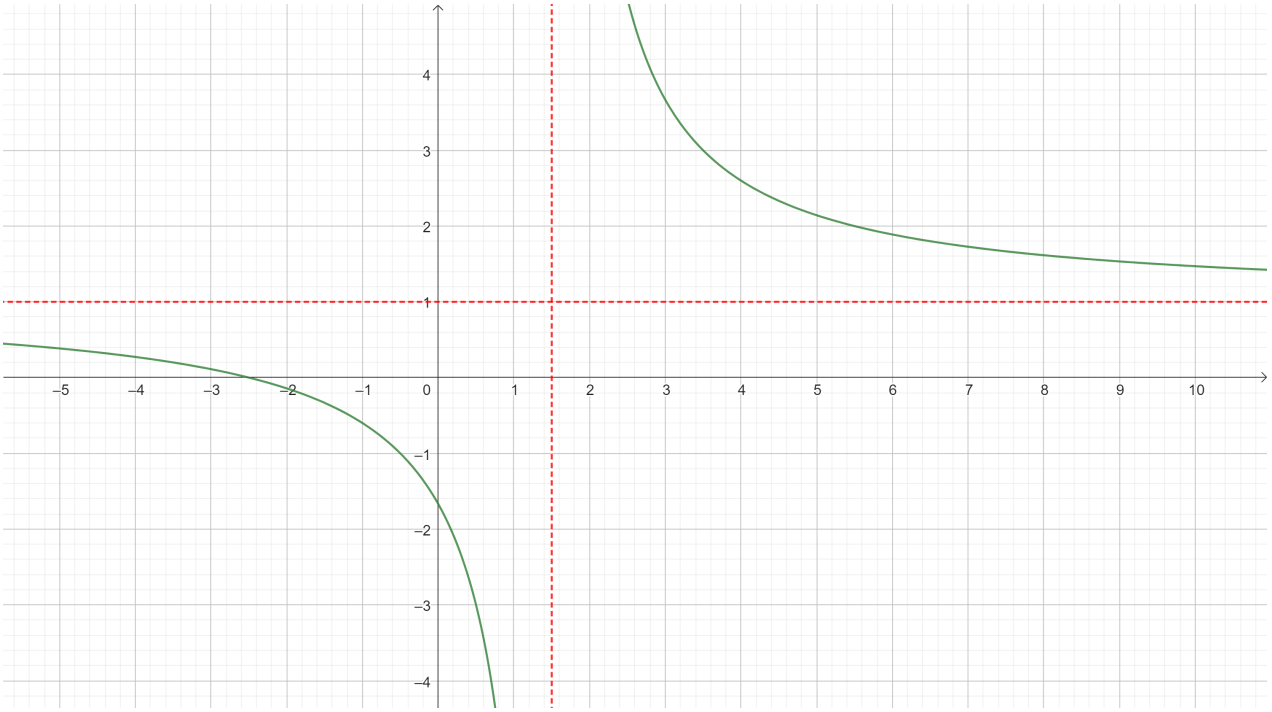
Name:
Result:

1. *(3 points)*

The diagram below shows the graph of $y = \dfrac{ax+5}{cx+d}$.



The graph has a x-intercept at -2.5, the y-intercept at $-\frac{5}{3}$, horizontal asymptote at $y = 1$ and vertical asymptote at $x = \frac{3}{2}$. Find the constants a, c and d.

2.
Sketch the graph $y = f(x)$ for the following functions. In each case clearly indicate the coordinates of axes intercepts and equations of any asymptotes.

a) $f(x) = \left|\dfrac{|x|+2}{|x|-3}\right|$ *(3 points)*

b) $f(x) = \dfrac{2x-4}{|x-1|}$ *(3 points)*

c) $f(x) = 2x + 1 - |x|$ *(2 points)*

3.
Solve the following equations and inequalities:

a) $3|x + 2| + 1 > 13$ *(2 points)*

b) $|x+1| - |3x-6| = 1$ *(3 points)*