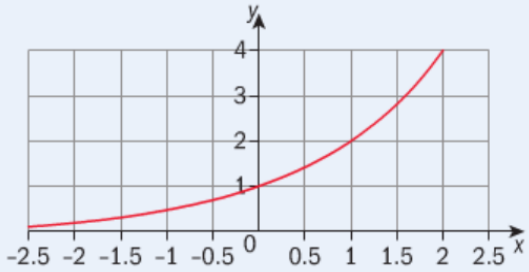
Identify the horizontal and vertical asymptotes for these functions if they exist.

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

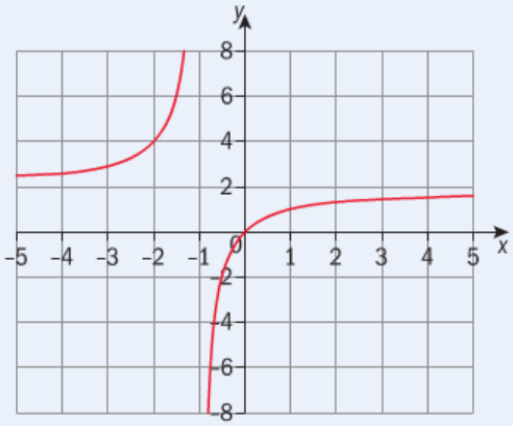
Re-do:

a



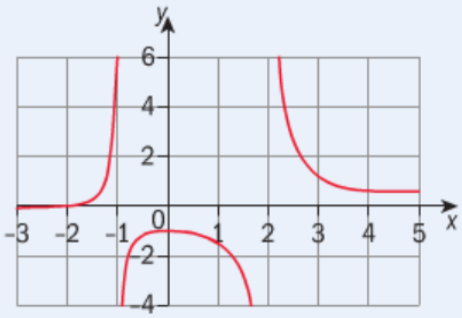
Horizontal asymptote $y = 0$

b



Horizontal asymptote $y = 2$
Vertical asympote $x = -1$

c



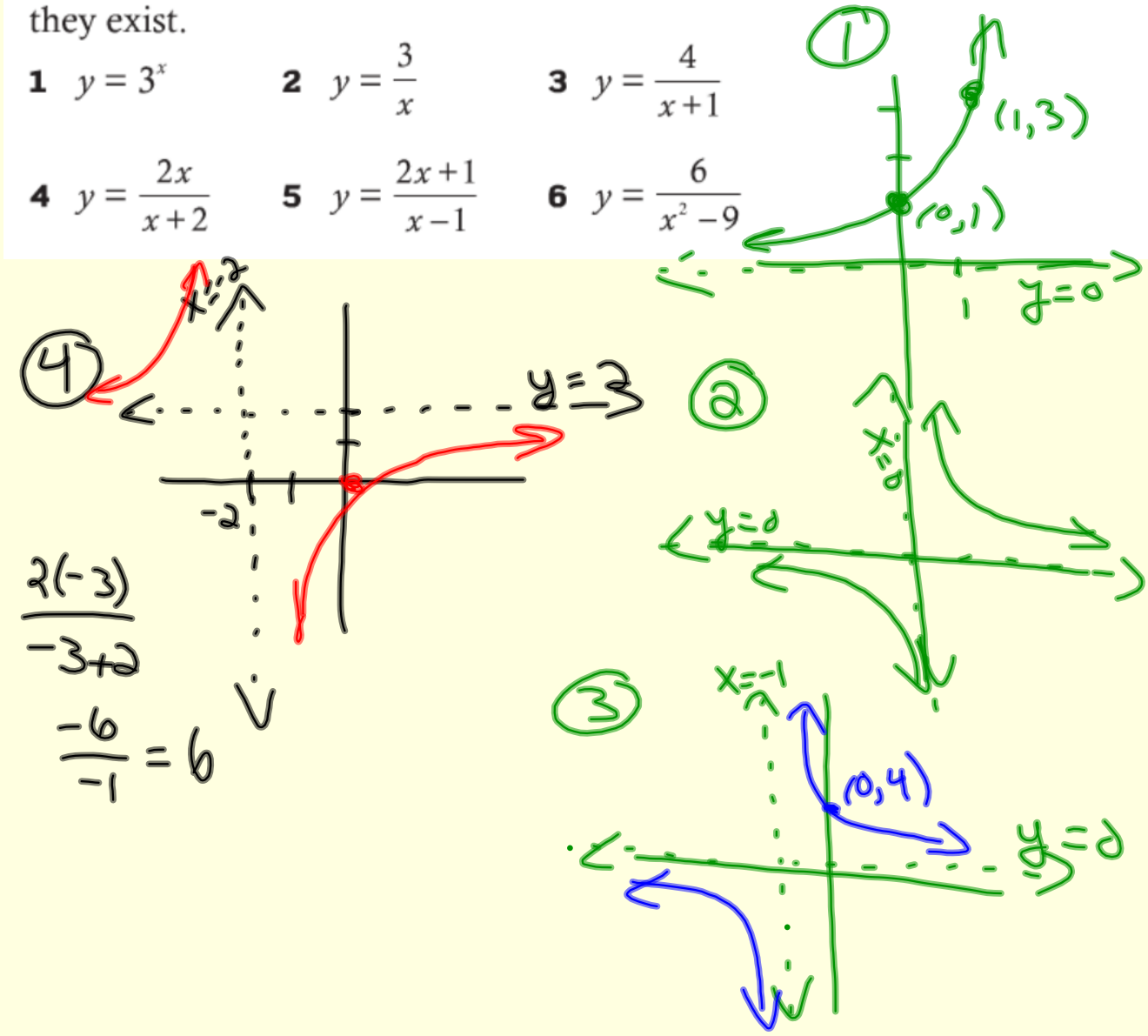
Horizontal asymptote $y = 0$
Vertical asympote $x = -1$ and $x = 2$

In Pairs work on a "thumbnail sketches" of each of these 6 functions. Be sure to indicate the 3 "S's."

Identify the horizontal and vertical asympotes for these functions, if they exist.

1 $y = 3^x$ **2** $y = \frac{3}{x}$ **3** $y = \frac{4}{x+1}$

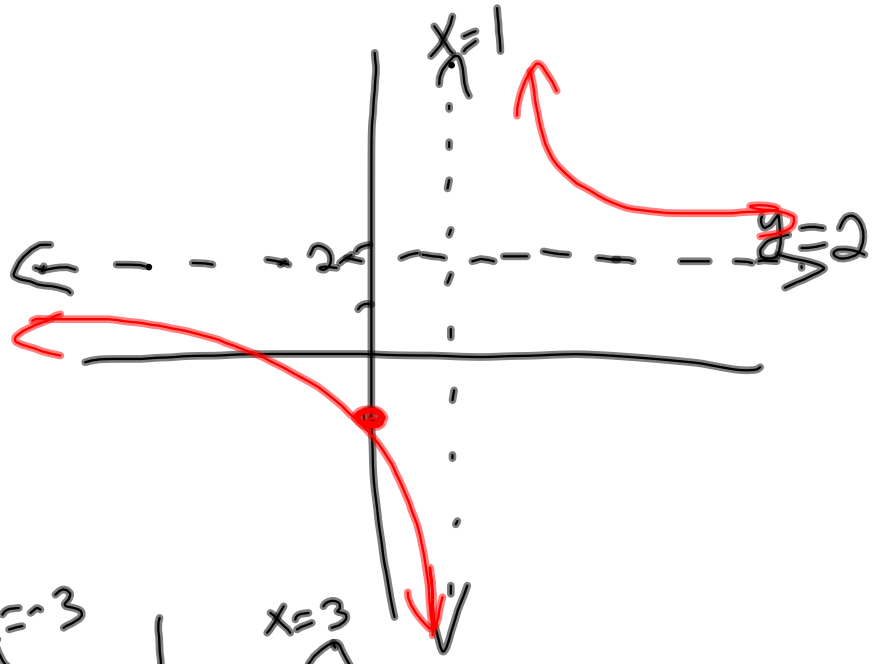
4 $y = \frac{2x}{x+2}$ **5** $y = \frac{2x+1}{x-1}$ **6** $y = \frac{6}{x^2-9}$



5

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

$\frac{1}{-1} = -1$



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