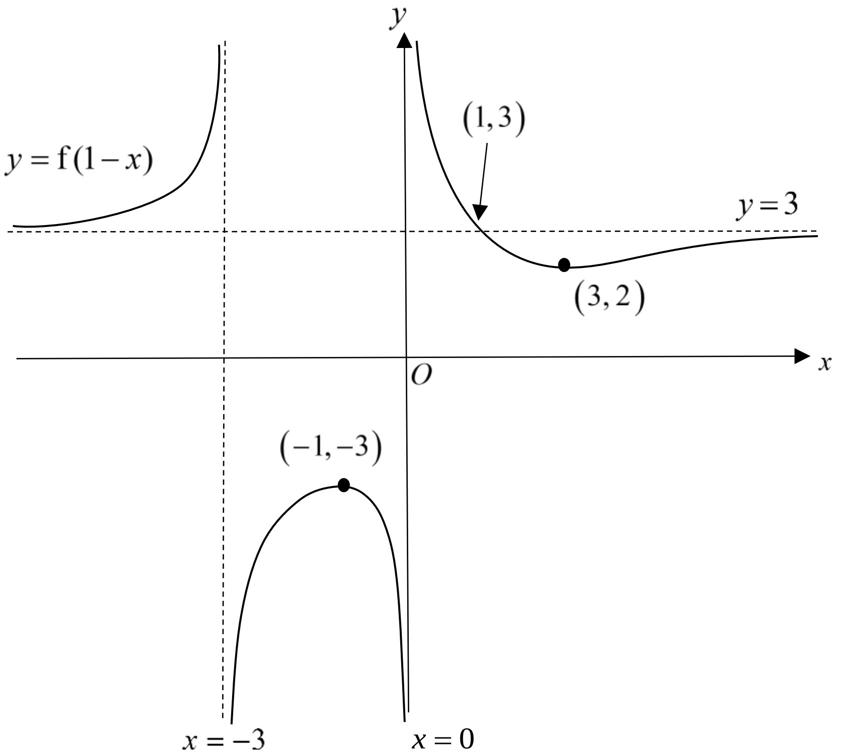
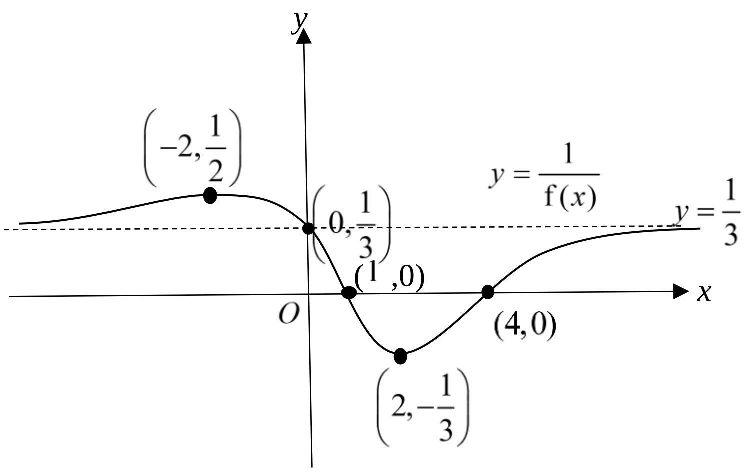
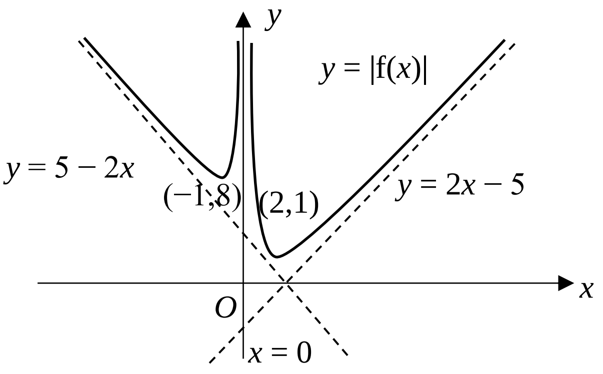
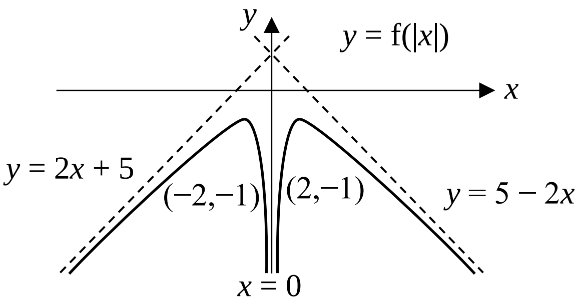
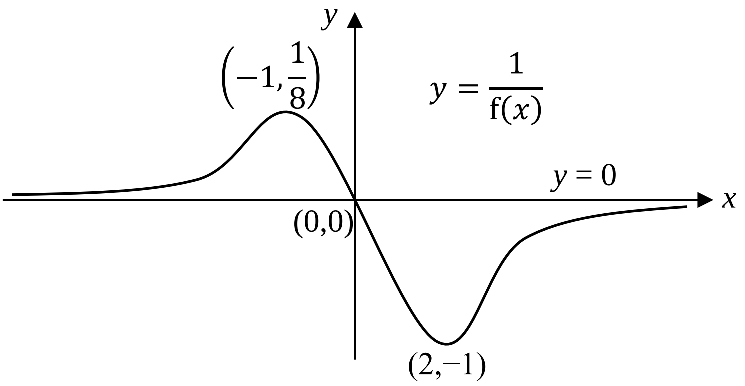
H2 Mathematics (9758)
Chapter 2 Transformation of Curves
Extra Practice Solutions

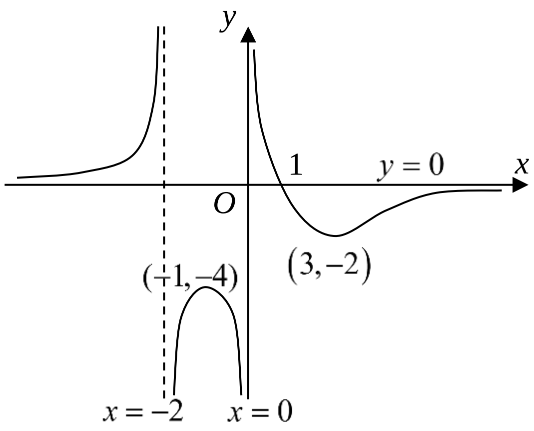
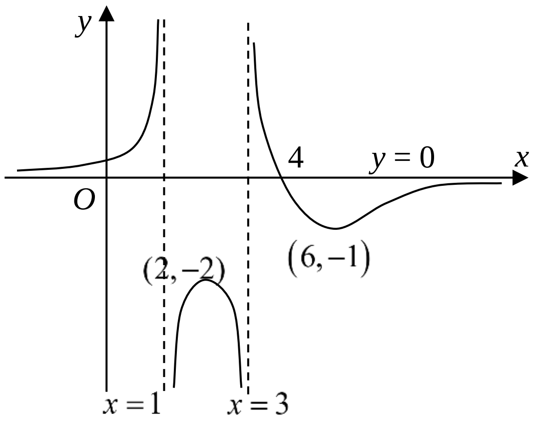
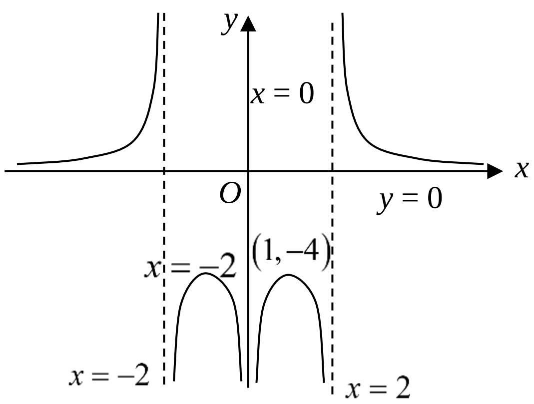
Qn 1	2020/VJC/8b
	Before C, the equation of curve is $y=-\dfrac{x+3}{x+2}$ Before B, the equation is $y=\dfrac{x+3}{x+2}$ Before A, the equation is $y=\dfrac{(x-3)+3}{(x-3)+2}=\dfrac{x}{x-1}$ $\therefore y=\dfrac{x}{x-1}$

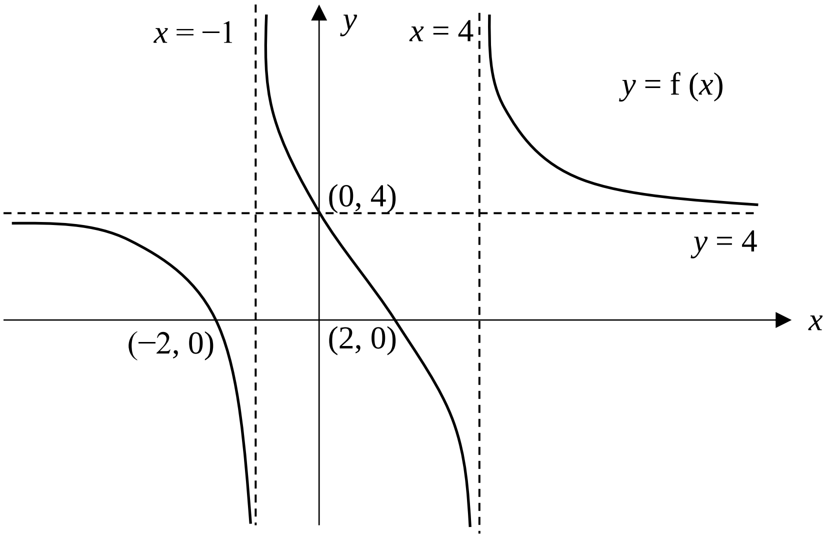
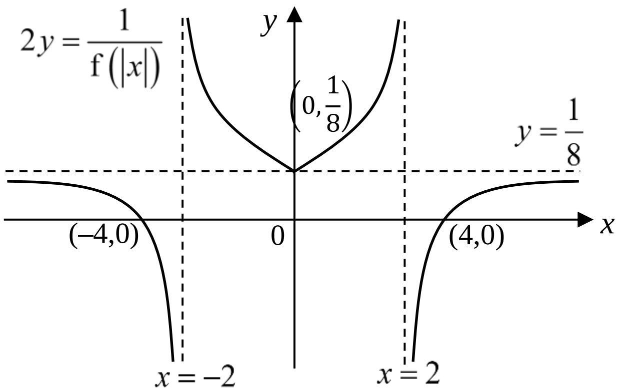
Qn 2	2020/CJC Prelim/1
(i)	$\mathrm{f}(x)=\dfrac{2x+3}{3x+5}$ $=\dfrac{2}{3}-\dfrac{1}{3(3x+5)}$ $=\dfrac{2}{3}+\dfrac{-\frac{1}{3}}{3x+5}$
(ii)	$y=\dfrac{1}{x} \rightarrow y=\dfrac{1}{9}\left(\dfrac{1}{x}\right)=\dfrac{1}{9x}$ **Step1**: stretching by a factor of $\dfrac{1}{9}$ parallel to the y-axis Or stretching by a factor of $\dfrac{1}{9}$ parallel to the x-axis $y=\dfrac{1}{9x} \rightarrow y=\dfrac{1}{9\left(x+\frac{5}{3}\right)}$ **Step2**: translation by $\dfrac{5}{3}$ units in the negative x-direction $y=\dfrac{1}{9\left(x+\frac{5}{3}\right)} \rightarrow y=-\dfrac{1}{9\left(x+\frac{5}{3}\right)}$ **Step3**: reflection in the x-axis

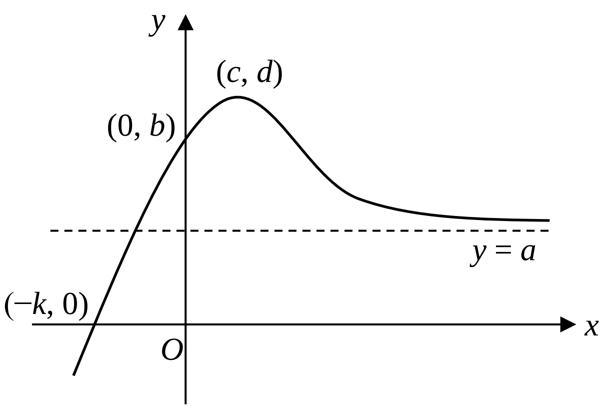
	$y=-\dfrac{1}{9\left(x+\frac{5}{3}\right)} \rightarrow y=\dfrac{2}{3}-\dfrac{1}{9\left(x+\frac{5}{3}\right)}$ **Step4:** translation by $\dfrac{2}{3}$ units in the positive *y*-direction

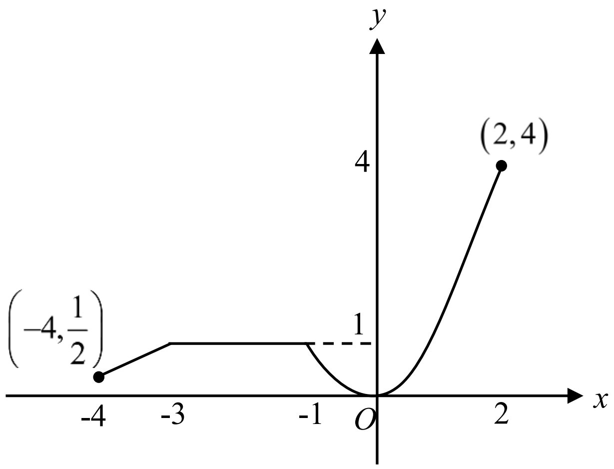
Qn 3	**2020/RI Prelim/6**
(a)	
(b)	

Qn 4	**2017/MI Promo/10 (modified)**
(i)	
(ii)	
(iii)	

Qn 5	2012/VJC Prelim/I/9(b) (modified)
(i)	$y=\mathrm{h}(x+3)$ 
(ii)	$y=\frac{1}{2}\mathrm{h}(x)$ 
(iii)	$y=\mathrm{h}(-\lvert x\rvert+3)$  Just replace x by $\lvert x\rvert$ using original graph of $y=\mathrm{h}(3-x)$.

Qn 6	**2017/RVHS Promo/6**
(a) (i)	
(a) (ii)	 **Note:** $\left(0, \frac{1}{8}\right)$ is a sharp point.

Qn 7	**2018/MI Promo/2**
	

Qn 8	**2021/YIJC Prelim/2**
(i)	
(ii)