

Name:  
Group A  
Result:

1.

[6 points]

Describe a sequence of transformations that maps the graph of  $f(x)$  onto the graph of  $g(x)$  when

- a)  $f(x) = \sqrt{x}$  and  $g(x) = 2\sqrt{1-x}$ .
- b)  $f(x) = 2^x$  and  $g(x) = -2^{x+1} - 2$ .
- c)  $f(x) = x^2 + 4x + 6$  and  $g(x) = 2x^2 + 4x - 1$ .

2.

[3 points]

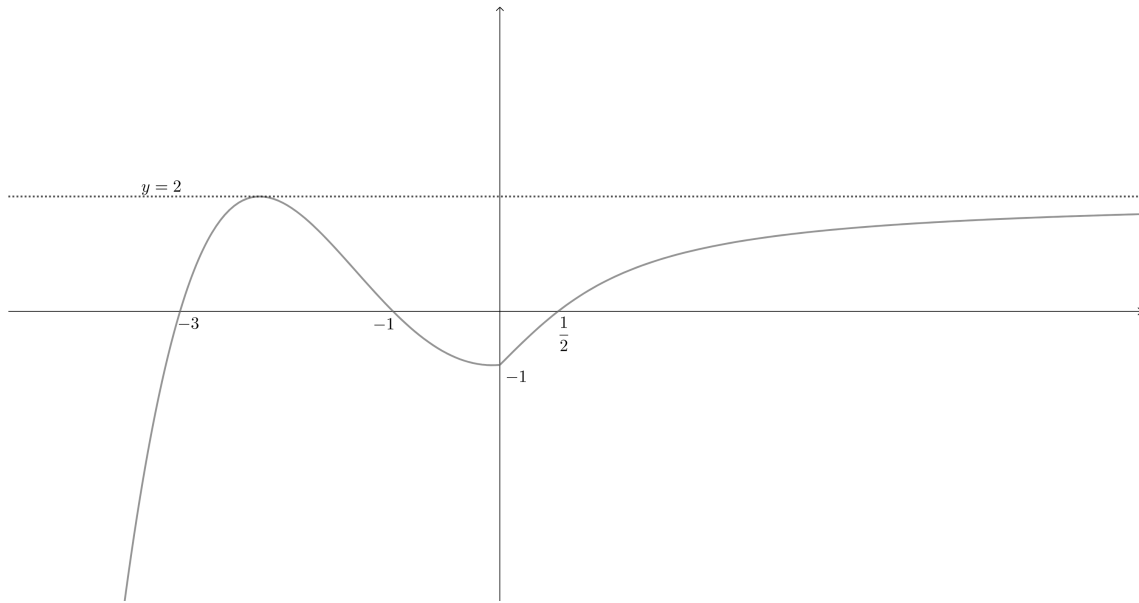
The graph of  $f(x) = ax + b$  has been stretched vertically by a factor of 2, then translated by vector  $\begin{pmatrix} 1 \\ 5 \end{pmatrix}$  and then reflect in  $y$ -axis. As a result a graph of  $g(x) = 1 - 6x$  was obtained. Find the values of  $a$  and  $b$ .

**3.**

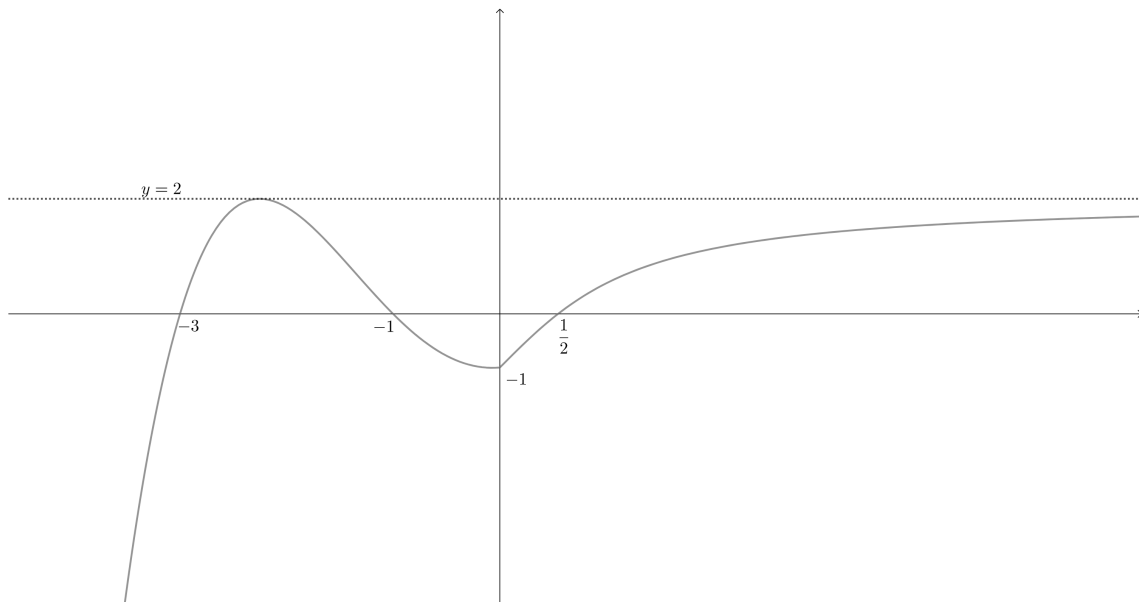
[6 points]

Four copies of the graph  $y = f(x)$  has been shown below. Sketch the graphs of:

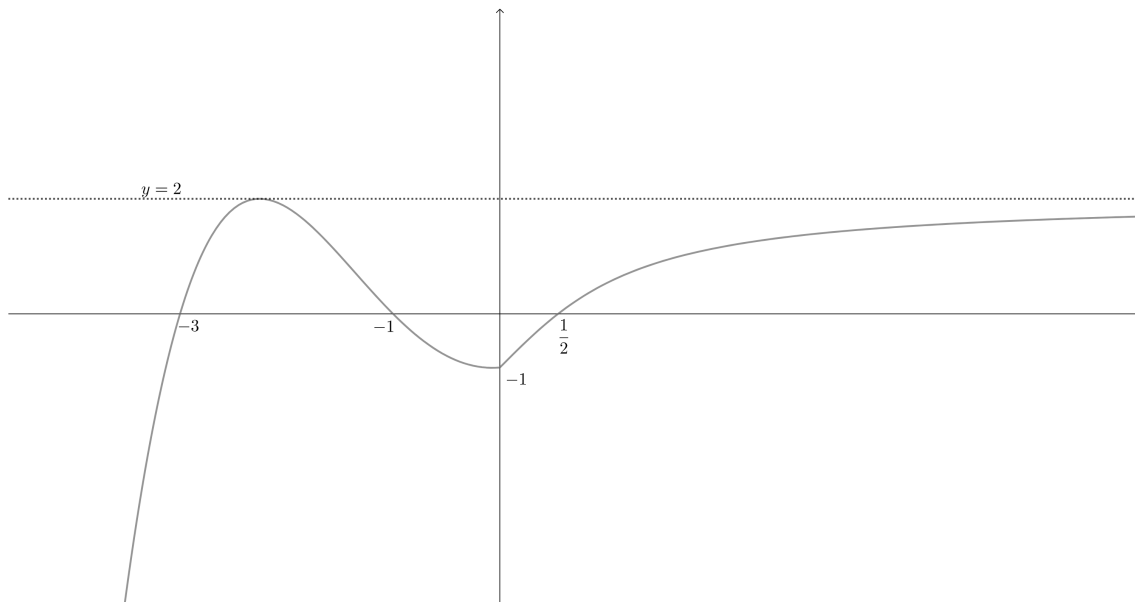
a)  $y = f(x - 1)$



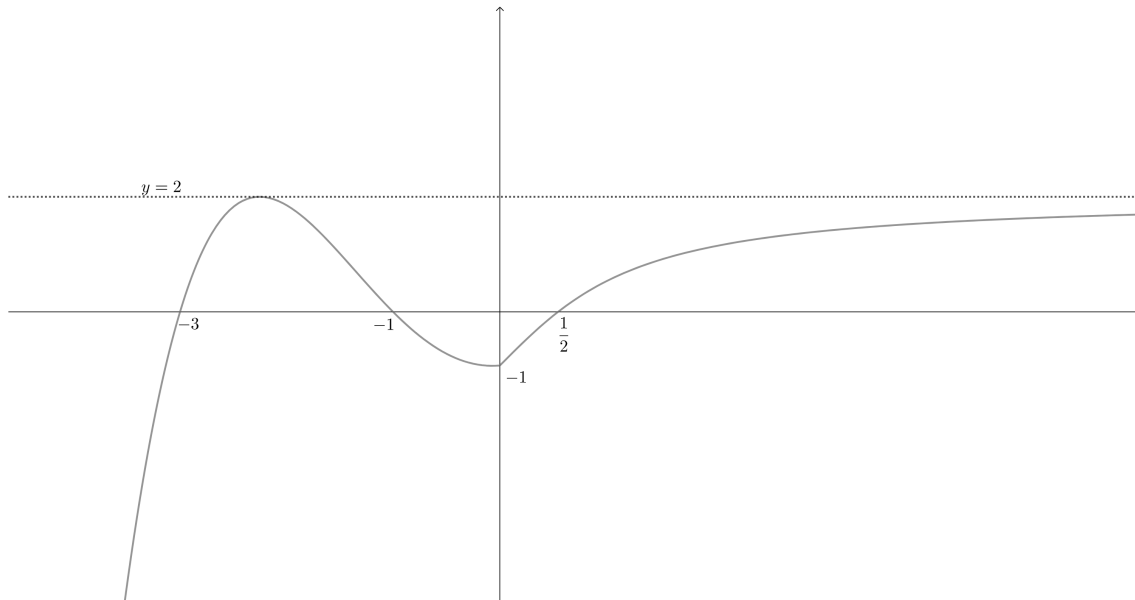
b)  $y = f(\frac{1}{2}x)$



c)  $y = |f(-x)|$



d)  $y = \frac{1}{f(x)}$

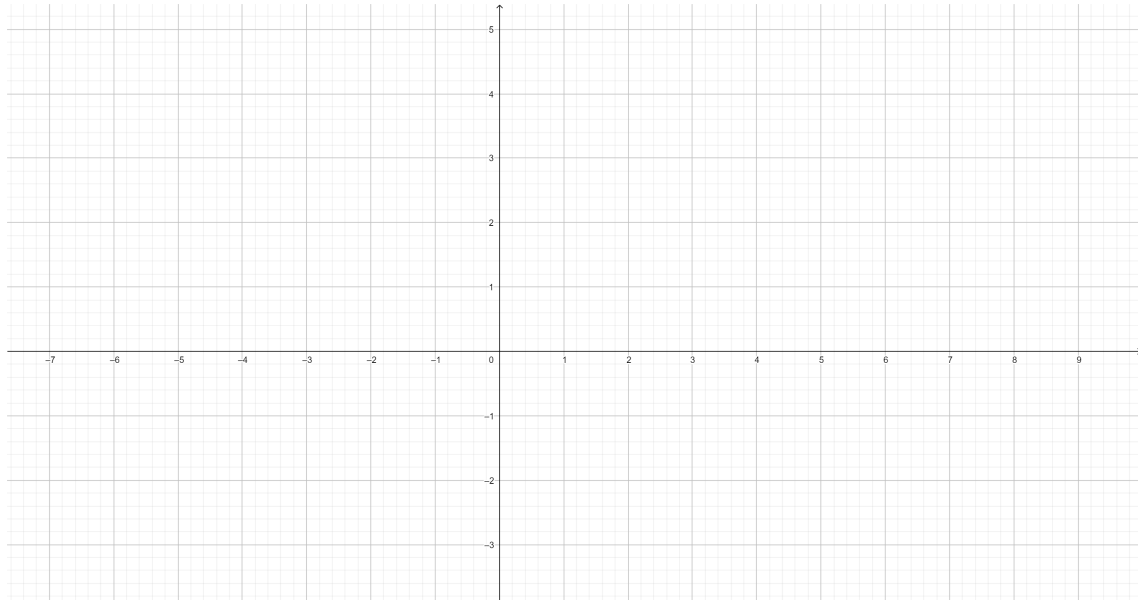


5.

[5 points]

Sketch the following graphs. Clearly indicate any axes intercepts and asymptotes (if they exist):

a)  $y = \left| \frac{2x - 7}{x - 3} \right|$



b)  $y = |x|^2 - 2|x| - 3$ .

