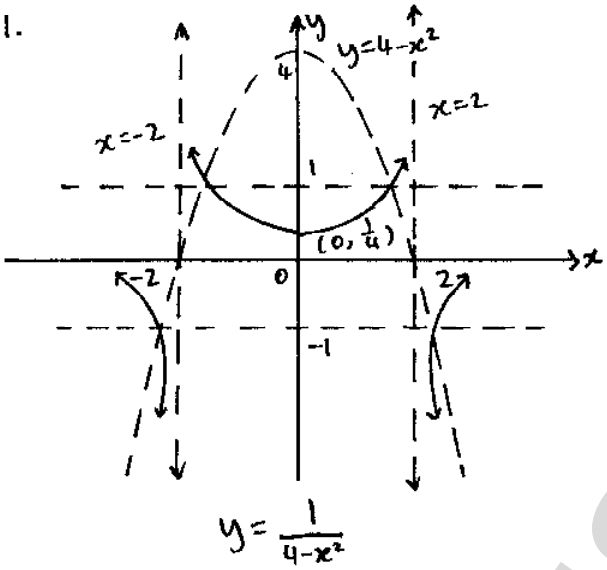
EXERCISE: 1·5

1.

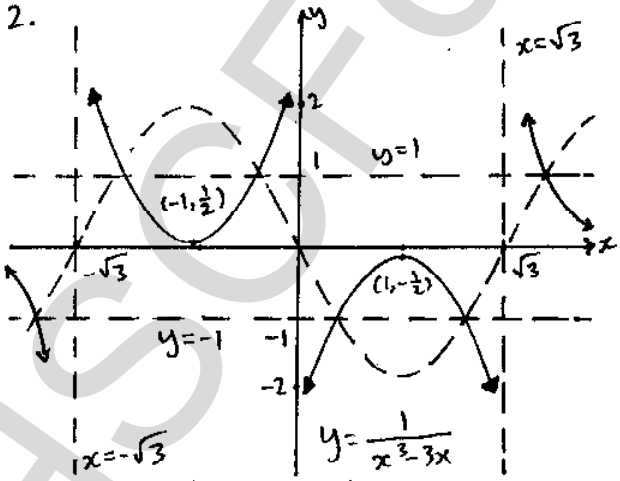


Yes, because it's symmetrical about the y-axis. $g(x)=\frac{1}{4-x^2}$

$\therefore g(-x)=\frac{1}{4-(-x)^2}=\frac{1}{4-x^2}=g(x)$

$\therefore g(x)$ is an even function.

2.



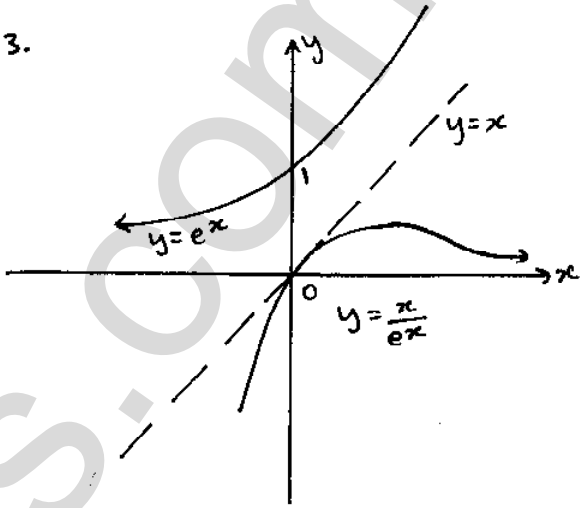
Note: When taking reciprocal of a function $f(x)$ every point of intersection with x-axis becomes an asymptote for $y=\frac{1}{f(x)}$.

As $g(x)=\frac{1}{x^3-3x}$

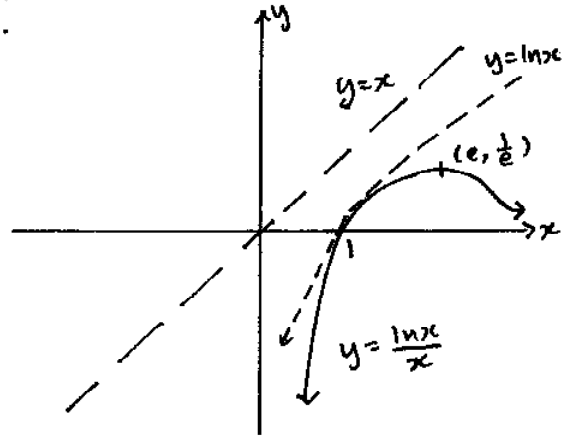
$\therefore g(-x)=\frac{1}{(-x)^3-3(-x)}=\frac{1}{-x^3+3x}=-g(x)$

$\therefore g(x)$ is an odd function and is symmetrical about origin as shown.

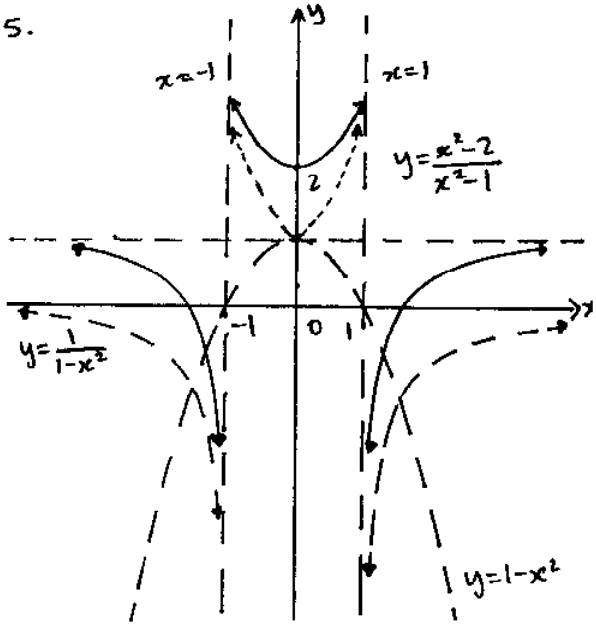
3.



4.



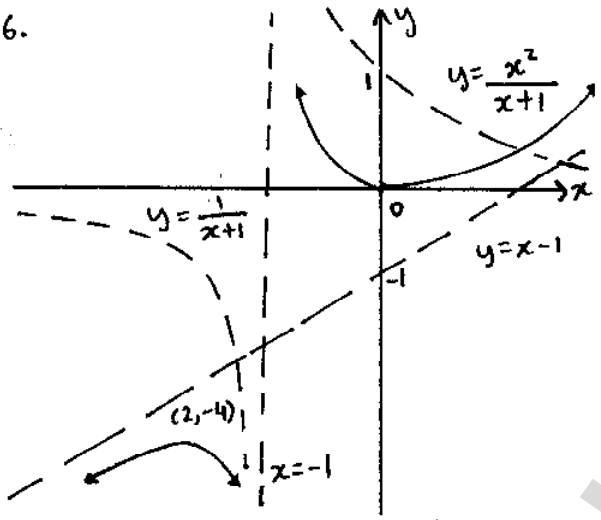
5.



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

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

6.



$$\begin{array}{r} x-1 \\ x+1 \overline{)\,x^2} \\ x^2+x \\ \hline -x \\ -x-1 \\ \hline 1 \end{array}$$

$\therefore y = \frac{x^2}{x+1}$

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