

Question #1

9) $f(x) = \cos 2x$, $[-2\pi, 2\pi]$

cosine function do not have asymptotes.

→ No asymptotes

$\rightarrow (0,1)$ is a local maxima, also absolute.

$\rightarrow (\pi/2, -1)$ is a local minima, also absolute.

$$\Rightarrow f''(x) = 0, \quad x = \pi/4, \quad f(\pi/4) = 0$$

inflection point $(\pi/4, 0)$

b) $g(x) = \frac{2x}{x^2 - 4}$, $(-\infty, \infty)$

→ vertical asymptotes, $x = -2, 2$

→ Horizontal asymptotes, $y=0$

→ $f'(x) = 0$, there is no maxima or no minima.

$$\rightarrow f''(x) = 0, \quad x = 0, \quad f(0) = 0$$

inflection point (0,0)