

ANSWER ANY FIVE QUESTIONS :-

1. Find the asymptotes of the function :-
$$f(x) = \frac{x^2 - 3}{2x - 4}$$

2. Find all the points of maxima & minima & all the maximum & minimum values :-

$$f(x) = x^5 - 5x^4 + 5x^3 - 1$$

3. Using L' Hôpital's Rule, find the values of p & q such that

$$\lim_{x \rightarrow 0} \frac{x(1 - p \cos x) + q \sin x}{x^3} = \frac{1}{3}$$

4. Sketch the graph of the function
$$f(x) = 3x^5 - 5x^3$$

5. Graph the polar equation $r = 1 - \cos \theta$ & identify its symmetries.

6. Find the intervals on which the function $y = 3x^5 - 40x^3 + 3x - 20$ is concave upwards & downwards. Also, identify any inflection points.