Increasing and Decreasing Functions

SUBJECT : MATHEMATICS
CHAPTER NUMBER:6
CHAPTER NAME : Application of Derivatives

Problem- 1

Find the intervals in which the Function $y = (x + 1)^3(x - 3)^3$ is increasing or decreasing.

Problem- 2

Show that the function f given by $f(x) = x^3 - 3x^2 + 4x$, $x \epsilon R$ is strictly increasing on R.

Problem- 3

Find the intervals in which the function given by $f(x) = \sin 3x, \quad x \in \left[0, \frac{\pi}{2}\right]$

Problem- 4

Find the intervals in which the function given by $f(x) = sinx + cosx, \quad x \in [0, 2\pi]$ is strictly increasing or decreasing.

Problem- 5

Show that $y = \log(1 + x) - \left(\frac{2x}{2+x}\right)$, $x > -1$ is increasing function of x through out its domain.

Show that $y = \frac{4 Sin\theta}{2+Cos\theta} - \theta$, is increasing function of θ in $\left[0, \frac{\pi}{2}\right]$.

Q1. Find the interval in which $f(x) = tanx - 4x$, is increasing or decreasing on $\left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$

Q2. Find the interval in which $f(x) = [x(x-2)]^2$ is increasing or decreasing.

Q3. find the least value of a such that the function $f(x) = x^2 + ax + 1$ is increasing on $[1,2]$

THANKING YOU

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