Q.No.	DAY - 52
322	**Example 7.53** Discuss the monotonicity and local extrema of the function $f(x)=\log(1+x)-\frac{x}{1+x}, x>-1$ and hence find the domain where, $\log(1+x)>\frac{x}{1+x}$.
323	**Example 7.54** Find the intervals of monotonicity and local extrema of the function $f(x)=x\log x+3x$.
324	**Example 7.55** Find the intervals of monotonicity and local extrema of the function $f(x)=\frac{1}{1+x^2}$.
325	**Example 7.56** Find the intervals of monotonicity and local extrema of the function $f(x)=\frac{x}{1+x^2}$.
326	**EXERCISE 7.6** 1. Find the absolute extrema of the following functions on the given closed interval. (iii) $f(x)=6x^{\frac{4}{3}}-3x^{\frac{1}{3}}$; $[-1,1]$ (iv) $f(x)=2\cos x+\sin 2x$; $\left[0,\frac{\pi}{2}\right]$

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2. Find the intervals of monotonicities and hence find the local extremum for the following functions:

(iii) $f(x)=\dfrac{e^x}{1-e^x}$ (iv) $f(x)=\dfrac{x^3}{3}-\log x$

(v) $f(x)=\sin x\cos x+5,\ x\in(0,2\pi)$