

কালের কণ্ঠ ডেস্ক ▷

কিঞ্চিৎ হাল ছাড়তে রাজি নন মিশ্র।
দিনে ১২ ঘণ্টা তিনি নিজের
কম্পিউটারে অনুবাদ আর বিবন্ধ
লেখার কাজ করে যান। তাঁর এই
পরিশ্রমের ফল হলো সাপ্তাহিক ১২
পৃষ্ঠার একটি পত্রিকা। সন্তোষে
প্রাককাশের সপ্নমুগ্ধ করেছেন তিনি।
বলছিলেন, 'আমার লক্ষ্য হলো
সংস্কৃতকে গণমানুষের কাছাকাছি
'নিয়োগ' করা, যাতে সবাই এর
ব্যবহার করতে পারে।' ভারতের
সংস্কৃতির সঙ্গে এ ভাষার গভীর
সংযোগ রয়েছে বলে মনে করেন
তিনি।

হিন্দুতাবাদী নেতা নরেন্দ্র মোদি

প্রধানমন্ত্রী হওয়ার পর শিশুর মতো আরো অনেকেই বিষয়টি নিয়ে আগাধারী হয়ে উঠেছে। মোদি নিজের এই ভাষায় শপথ না নিলেও বেশ কয়েকজন মন্ত্রী শপথের ভাষা হিসেবে একে বেছে নিয়েছিলেন। পরে সংস্কৃতের সম্মারাগণের লেখা 'সংস্কৃত নয়া'ও যোগ্য করা হয়। কুলে এই ভাষা পড়ানোর উদ্যোগ নেওয়া হয়েছে। শ্রী : এম্বিকপি।

THE UNIVERSITY OF CHICAGO
DEPARTMENT OF MATHEMATICS

NAME: _____
DATE: _____

PROBLEM 1. Let $f: \mathbb{R} \rightarrow \mathbb{R}$ be a function satisfying

$$f(x+y) = f(x) + f(y) \quad \text{for all } x, y \in \mathbb{R}.$$

(a) Show that $f(0) = 0$.

(b) Show that $f(-x) = -f(x)$.

(c) Show that $f(qx) = qf(x)$ for all $q \in \mathbb{Q}$ and $x \in \mathbb{R}$.

(d) Suppose f is continuous at 0 . Show that f is linear, i.e., $f(x) = cx$ for some $c \in \mathbb{R}$.

(e) Suppose f is not continuous at 0 . Show that f is not linear.

(f) Suppose f is not continuous at 0 . Show that f is not measurable.

(g) Suppose f is not continuous at 0 . Show that f is not bounded on any interval.

(h) Suppose f is not continuous at 0 . Show that f is not Lebesgue measurable.

(i) Suppose f is not continuous at 0 . Show that f is not Borel measurable.

(j) Suppose f is not continuous at 0 . Show that f is not Riemann integrable.

(k) Suppose f is not continuous at 0 . Show that f is not differentiable at 0 .

(l) Suppose f is not continuous at 0 . Show that f is not twice differentiable at 0 .

(m) Suppose f is not continuous at 0 . Show that f is not three times differentiable at 0 .

(n) Suppose f is not continuous at 0 . Show that f is not four times differentiable at 0 .

(o) Suppose f is not continuous at 0 . Show that f is not five times differentiable at 0 .

(p) Suppose f is not continuous at 0 . Show that f is not six times differentiable at 0 .

(q) Suppose f is not continuous at 0 . Show that f is not seven times differentiable at 0 .

(r) Suppose f is not continuous at 0 . Show that f is not eight times differentiable at 0 .

(s) Suppose f is not continuous at 0 . Show that f is not nine times differentiable at 0 .

(t) Suppose f is not continuous at 0 . Show that f is not ten times differentiable at 0 .

(u) Suppose f is not continuous at 0 . Show that f is not eleven times differentiable at 0 .

(v) Suppose f is not continuous at 0 . Show that f is not twelve times differentiable at 0 .

(w) Suppose f is not continuous at 0 . Show that f is not thirteen times differentiable at 0 .

(x) Suppose f is not continuous at 0 . Show that f is not fourteen times differentiable at 0 .

(y) Suppose f is not continuous at 0 . Show that f is not fifteen times differentiable at 0 .

(z) Suppose f is not continuous at 0 . Show that f is not sixteen times differentiable at 0 .

(aa) Suppose f is not continuous at 0 . Show that f is not seventeen times differentiable at 0 .

(ab) Suppose f is not continuous at 0 . Show that f is not eighteen times differentiable at 0 .

(ac) Suppose f is not continuous at 0 . Show that f is not nineteen times differentiable at 0 .

(ad) Suppose f is not continuous at 0 . Show that f is not twenty times differentiable at 0 .

(ae) Suppose f is not continuous at 0 . Show that f is not twenty-one times differentiable at 0 .

(af) Suppose f is not continuous at 0 . Show that f is not twenty-two times differentiable at 0 .

(ag) Suppose f is not continuous at 0 . Show that f is not twenty-three times differentiable at 0 .

(ah) Suppose f is not continuous at 0 . Show that f is not twenty-four times differentiable at 0 .

(ai) Suppose f is not continuous at 0 . Show that f is not twenty-five times differentiable at 0 .

(aj) Suppose f is not continuous at 0 . Show that f is not twenty-six times differentiable at 0 .

(ak) Suppose f is not continuous at 0 . Show that f is not twenty-seven times differentiable at 0 .

(al) Suppose f is not continuous at 0 . Show that f is not twenty-eight times differentiable at 0 .

(am) Suppose f is not continuous at 0 . Show that f is not twenty-nine times differentiable at 0 .

(an) Suppose f is not continuous at 0 . Show that f is not thirty times differentiable at 0 .

(ao) Suppose f is not continuous at 0 . Show that f is not thirty-one times differentiable at 0 .

(ap) Suppose f is not continuous at 0 . Show that f is not thirty-two times differentiable at 0 .

(aq) Suppose f is not continuous at 0 . Show that f is not thirty-three times differentiable at 0 .

(ar) Suppose f is not continuous at 0 . Show that f is not thirty-four times differentiable at 0 .

(as) Suppose f is not continuous at 0 . Show that f is not thirty-five times differentiable at 0 .

(at) Suppose f is not continuous at 0 . Show that f is not thirty-six times differentiable at 0 .

(au) Suppose f is not continuous at 0 . Show that f is not thirty-seven times differentiable at 0 .

(av) Suppose f is not continuous at 0 . Show that f is not thirty-eight times differentiable at 0 .

(aw) Suppose f is not continuous at 0 . Show that f is not thirty-nine times differentiable at 0 .

(ax) Suppose f is not continuous at 0 . Show that f is not forty times differentiable at 0 .

(ay) Suppose f is not continuous at 0 . Show that f is not forty-one times differentiable at 0 .

(az) Suppose f is not continuous at 0 . Show that f is not forty-two times differentiable at 0 .

(ba) Suppose f is not continuous at 0 . Show that f is not forty-three times differentiable at 0 .

(bb) Suppose f is not continuous at 0 . Show that f is not forty-four times differentiable at 0 .

(bc) Suppose f is not continuous at 0 . Show that f is not forty-five times differentiable at 0 .

(bd) Suppose f is not continuous at 0 . Show that f is not forty-six times differentiable at 0 .

(be) Suppose f is not continuous at 0 . Show that f is not forty-seven times differentiable at 0 .

(bf) Suppose f is not continuous at 0 . Show that f is not forty-eight times differentiable at 0 .

(bg) Suppose f is not continuous at 0 . Show that f is not forty-nine times differentiable at 0 .

(bh) Suppose f is not continuous at 0 . Show that f is not fifty times differentiable at 0 .

(bi) Suppose f is not continuous at 0 . Show that f is not fifty-one times differentiable at 0 .

(bj) Suppose f is not continuous at 0 . Show that f is not fifty-two times differentiable at 0 .

(bk) Suppose f is not continuous at 0 . Show that f is not fifty-three times differentiable at 0 .

(bl) Suppose f is not continuous at 0 . Show that f is not fifty-four times differentiable at 0 .

(bm) Suppose f is not continuous at 0 . Show that f is not fifty-five times differentiable at 0 .

(bn) Suppose f is not continuous at 0 . Show that f is not fifty-six times differentiable at 0 .

(bo) Suppose f is not continuous at 0 . Show that f is not fifty-seven times differentiable at 0 .

(bp) Suppose f is not continuous at 0 . Show that f is not fifty-eight times differentiable at 0 .

(bq) Suppose f is not continuous at 0 . Show that f is not fifty-nine times differentiable at 0 .

(br) Suppose f is not continuous at 0 . Show that f is not sixty times differentiable at 0 .

(bs) Suppose f is not continuous at 0 . Show that f is not sixty-one times differentiable at 0 .

(bt) Suppose f is not continuous at 0 . Show that f is not sixty-two times differentiable at 0 .

(bu) Suppose f is not continuous at 0 . Show that f is not sixty-three times differentiable at 0 .

(bv) Suppose f is not continuous at 0 . Show that f is not sixty-four times differentiable at 0 .

(bw) Suppose f is not continuous at 0 . Show that f is not sixty-five times differentiable at 0 .

(bx) Suppose f is not continuous at 0 . Show that f is not sixty-six times differentiable at 0 .

(by) Suppose f is not continuous at 0 . Show that f is not sixty-seven times differentiable at 0 .

(bz) Suppose f is not continuous at 0 . Show that f is not sixty-eight times differentiable at 0 .

(ca) Suppose f is not continuous at 0 . Show that f is not sixty-nine times differentiable at 0 .

(cb) Suppose f is not continuous at 0 . Show that f is not seventy times differentiable at 0 .

(cc) Suppose f is not continuous at 0 . Show that f is not seventy-one times differentiable at 0 .

(cd) Suppose f is not continuous at 0 . Show that f is not seventy-two times differentiable at 0 .

(ce) Suppose f is not continuous at 0 . Show that f is not seventy-three times differentiable at 0 .

(cf) Suppose f is not continuous at 0 . Show that f is not seventy-four times differentiable at 0 .

(cg) Suppose f is not continuous at 0 . Show that f is not seventy-five times differentiable at 0 .

(ch) Suppose f is not continuous at 0 . Show that f is not seventy-six times differentiable at 0 .

(ci) Suppose f is not continuous at 0 . Show that f is not seventy-seven times differentiable at 0 .

(cj) Suppose f is not