Quiz No.18

student:

Problem 1: Fill the blanks:
The Ratio Test
Let $S = \sum_{n=1}^{\infty} a_n$ be a series.
Suppose the limit $L = \lim_{n\to\infty} |\frac{\cdots}{\cdot\cdot}|$ exist.
Then
1) if .... the series is convergent.
2) if $L >$..... the series is ....
3) if $L = 1$ the test gives ...... conclusion.

Problem 2: State the Integral Test for convergence.

Problem 3: Give four examples -one of a bounded sequence, a sequence bounded below only, a sequence bounded above only, a sequence which is not in the any of the above three categories.

Problem 4: Fill the blanks:
Limit of a sequence.
A sequence $\{a_n\}$ has the **limit** L and we write

$$\ldots\ldots = L \quad \text{or} \quad a_n \to L \text{ as } n \to \infty$$

if .... $\epsilon > 0$ there exist a corresponding integer N such that

$$|a_n - \ldots| < \ldots \qquad \text{whenever} \qquad n \ldots N$$

Find the radius of convergence and the interval of convergence of the series (Pr5-Pr10): :)

Problem 5: $\sum_{n=0}^{\infty} \frac{x^n}{\sqrt{n}}$

Problem 6: $\sum_{n=0}^{\infty} (-1)^n \frac{3^n x^n}{(n+1)^2}$

Problem 7: $\sum_{n=0}^{\infty} \frac{x^n}{n!}$

Problem 8: $\sum_{n=0}^{\infty} \frac{(x-2)^n}{\sqrt{n}}$

Problem 9: $\sum_{n=0}^{\infty} (-1)^n \frac{3^n (x+1)^n}{(n+1)^2}$

Problem 10: $\sum_{n=0}^{\infty} \frac{(x+2)^n}{n!}$