

Name: _____

Series Review 1

Find the radius of convergence for each power series. Show all work!!

1. $\sum_{n=1}^{\infty} \frac{(3x-2)^n}{n}$

2. $\sum_{n=1}^{\infty} \frac{n(x+3)^n}{5^n}$

3. $\sum_{n=1}^{\infty} \frac{(4x-5)^{2n+1}}{n^{3/2}}$

Determine whether the series converges or diverges. Be sure to identify the test you used and show all work!

4. $\sum_{n=1}^{\infty} \frac{3}{\sqrt{n}}$

5. $\sum_{n=0}^{\infty} \frac{e^n}{1+e^{2n}}$

6. $\sum_{n=1}^{\infty} \frac{3^{n-1}+1}{3^n}$

7. $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{1+n}{n^2}$

8. $\sum_{n=1}^{\infty} (-1)^{n+1} n^2 \left(\frac{2}{3}\right)^n$

Find the interval of convergence for each. Be sure to check the endpoints!!

9. $\sum_{n=1}^{\infty} \frac{(x+4)^n}{n3^n}$

10. $\sum_{n=1}^{\infty} \frac{(-1)^{n-1}(3x-1)^n}{n^2}$

11. $\sum_{n=1}^{\infty} \frac{x^n}{\sqrt{n}}$

12. $\sum_{n=2}^{\infty} \frac{(10x)^n}{\ln n}$

13. $\sum_{n=1}^{\infty} \frac{e^n}{n^e} x^n$

14. $\sum_{n=1}^{\infty} \frac{x^n}{n\sqrt{n}3^n}$