CH. 9 (9.1 - 9.6) Review WS #2 **Name**:_____ Per.____

Tell whether each series converges or diverges and by which test #1 – 24

1) $\sum_{n=1}^{\infty} \frac{1}{n^{1.44}}$

2) $\sum_{n=5}^{\infty} \frac{1}{n^{0.99}}$

3) $\sum_{n=1}^{\infty} \frac{1200}{\sqrt[3]{n^2}}$

4) $\sum_{n=0}^{\infty} (-1)^n \frac{1}{n^{0.99}}$

5) $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{n-1}{n+25}$

6) $\sum_{n=1}^{\infty} (-1)^n \frac{1000}{\sqrt[3]{n^2}}$

7) $\sum_{n=1}^{\infty} 5\left(\frac{3}{7}\right)^n$

8) $\sum_{n=1}^{\infty} 9\left(\frac{4}{3}\right)^n$

9) $\sum_{n=1}^{\infty} \left(\frac{2}{5}\right)^n \cdot 3^n$

10) $\sum_{n=2}^{\infty} \frac{5}{n-1} - \frac{5}{n+1}$

11) $\sum_{n=1}^{\infty} \frac{(\ln n)^8}{n}$

12) $\sum_{n=2}^{\infty} \frac{1}{n^2+4}$

13) $\sum_{n=2}^{\infty} \frac{2n+9}{3n-7}$

14) $\sum_{n=1}^{\infty} \frac{n!}{100^n}$

15) $\sum_{n=2}^{\infty} (-1)^n \frac{7^n}{6^n}$

16) $\sum_{n=0}^{\infty} (-1)^{n+1} \frac{5^n}{n^7}$

17) $\sum_{n=0}^{\infty} \frac{1000^n}{(n+1)!}$

18) $\sum_{n=1}^{\infty} (-1)^n \frac{9^n}{2^n n^n}$

19) $\sum_{n=0}^{\infty} \frac{300n^4}{n^6+1}$

20) $\sum_{n=0}^{\infty} \sqrt{\frac{300}{n^2+1}}$

21) $\sum_{n=2}^{\infty} \frac{7n}{\sqrt[3]{n^9-1}}$

22) $\sum_{n=0}^{\infty} \frac{(200)^n}{(201)^n + 3}$

23) $\sum_{n=3}^{\infty} \frac{1}{n-1}$

24) $\sum_{n=1}^{\infty} \frac{28}{n^2 + 5}$

Find each sum if possible #25 – 30

25) $\sum_{n=2}^{\infty} \frac{5}{n-1} - \frac{5}{n+1} =$

26) $\sum_{n=1}^{\infty} 40\left(\frac{3}{4}\right)^n =$

27) $\sum_{n=0}^{\infty} 10\left(\frac{5}{4}\right)^n =$

28) $\sum_{n=2}^{\infty} \frac{4}{n(n+1)} =$

29) $\sum_{n=0}^{\infty} 1000\left(\frac{3}{5}\right)^n =$

30) $\sum_{n=1}^{2} 8\left(\frac{7}{2}\right)^n =$

Tell whether each series is *absolutely convergent*, *conditionally convergent*, or *divergent* #31 – 36.

31) $\sum_{n=0}^{\infty} (-1)^n \frac{1}{n + 1{,}000{,}000}$

32) $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{n-5}{256}$

33) $\sum_{n=1}^{\infty} (-1)^n \frac{3}{\sqrt[3]{n^7 + 1}}$

34) $\sum_{n=0}^{\infty} (-1)^n \frac{n^4}{\sqrt{n^8 + 6}}$

35) $\sum_{n=1}^{\infty} (-1)^{n+1} \frac{n^2 - 1}{n^5 + 17}$

36) $\sum_{n=1}^{\infty} (-1)^n \frac{1000}{\sqrt[3]{n^2}}$

37) Ball A is dropped from a height of 100 ft. and bounces 2/3 of its height on each bounce. Ball B is shot into the air to a height of 50 ft. and bounces 9/10 of its height on each bounce. Which ball travels the furthest and by how much?