

**WebAssign****Hw 24 (11.6): Absolute Conv., Ratio and Root Tests (Homework)**

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MA 162 Spring 2012, section 321, Spring 2012

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**Current Score** : 20 / 20**Due** : Thursday, March 22 2012 11:55 PM EDT**1.** 2.22/2.22 points | [Previous Answers](#)

SCalcET7 11.6.003.

Determine whether the series is absolutely convergent, conditionally convergent, or divergent.

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

- ☒ absolutely convergent  
☐ conditionally convergent  
☐ divergent

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SCalcET7 11.6.005.

Determine whether the series is absolutely convergent, conditionally convergent, or divergent.

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

- ☐ absolutely convergent  
☒ conditionally convergent  
☐ divergent

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SCalcET7 11.6.007.MI.

Determine whether the series is absolutely convergent, conditionally convergent, or divergent.

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

- ☒ absolutely convergent
- ☐ conditionally convergent
- ☐ divergent

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**4.** 2.22/2.22 points | [Previous Answers](#)

SCalcET7 11.6.008.MI.

Determine whether the series is absolutely convergent, conditionally convergent, or divergent.

$$\sum_{n=1}^{\infty} \frac{n!}{104^n}$$

- ☐ absolutely convergent
- ☐ conditionally convergent
- ☒ divergent

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**5.** 2.22/2.22 points | [Previous Answers](#)

SCalcET7 11.6.013.

Determine whether the series is absolutely convergent, conditionally convergent, or divergent.

$$\sum_{n=1}^{\infty} \frac{15^n}{(n+1)5^{2n+1}}$$

- ☒ absolutely convergent
- ☐ conditionally convergent
- ☐ divergent

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**6.** 2.22/2.22 points | [Previous Answers](#)

SCalcET7 11.6.017.

Determine whether the series is absolutely convergent, conditionally convergent, or divergent.

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

- ☐ absolutely convergent  
☒ conditionally convergent  
☐ divergent



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7. 2.22/2.22 points | [Previous Answers](#)

SCalcET7 11.6.019.

Determine whether the series is absolutely convergent, conditionally convergent, or divergent.

$$\sum_{n=1}^{\infty} \frac{\cos(n\pi/9)}{n!}$$

- ☒ absolutely convergent  
☐ conditionally convergent  
☐ divergent



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8. 2.22/2.22 points | [Previous Answers](#)

SCalcET7 11.6.031.

The terms of a series are defined recursively by the equations

$$a_1 = 7 \quad a_{n+1} = \frac{7n+1}{4n+11} \cdot a_n.$$

Determine whether  $\sum a_n$  is absolutely convergent, conditionally convergent, or divergent.

- ☐ absolutely convergent  
☐ conditionally convergent  
☒ divergent



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9. 2.24/2.24 points | [Previous Answers](#)

SCalcET7 11.6.035.

Determine whether the Ratio Test is inconclusive (that is, it fails to give a definite answer), conclusive (convergent), or conclusive (divergent) for each series.

(a)  $\sum_{n=3}^{\infty} \frac{5}{n^3}$

- ☒ inconclusive
- ☐ conclusive (convergent)
- ☐ conclusive (divergent)



(b)  $\sum_{n=2}^{\infty} \frac{n}{7^n}$

- ☐ inconclusive
- ☒ conclusive (convergent)
- ☐ conclusive (divergent)



(c)  $\sum_{n=2}^{\infty} \frac{(-4)^{n-1}}{\sqrt{n}}$

- ☐ inconclusive
- ☐ conclusive (convergent)
- ☒ conclusive (divergent)



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

- ☒ inconclusive
- ☐ conclusive (convergent)
- ☐ conclusive (divergent)



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