5.1 PRE-TEST

Course name: Calculus Calculus II Essential Skills
Professor name: Homeschool Studies
College name: Homeschool Studies

Directions: Ready to test your smarts?

Have a shot at this 16-question practice test!

Take it as many times as you want to. Once you're done, be sure to click the "Guide" button to review any questions you missed, a step-by-step explanation for the question, and a link to the video where that content is discussed.

Need Help? No Problem! Contact support@thinkwell.com with questions.

Question: 1   QID: 18243

Evaluate the following as true or false.
The sequence $\{x_n\}$, where
$x_n = \cos n\pi$, converges.

- ○ true
- ○ false

Question: 2   QID: 18297

Which of the following is the limit
of the sequence $\left\{ \dfrac{n}{n^2} \right\}$?

- ○ 0
- ○ 1/2
- ○ 1
- ○ The limit does not exist.

Question: 3   QID: 18351

To which of the following does
the sequence $\left\{ n^{-n^2} \right\}$ converge?

- ○ 0
- ○ 1
- ○ −1
- ○ Does not converge

Question: 4   QID: 18199

To which of the following does the sequence $\left\{ \dfrac{n}{3^n} \right\}$ converge?

- ○ 0
- ○ 1/3
- ○ 1
- ○ The sequence diverges to ∞.

Question: 5   QID: 18987

Find the sum of the finite series

$$\sum_{k=1}^{3} (-1)^{k+1} k^2.$$

- ○ 14
- ○ −14
- ○ 6
- ○ −6

Question: 6   QID: 18249

Evaluate $\displaystyle\sum_{n=0}^{\infty} (-1)^n.$

- ○ +1
- ○ −1
- ○ 0
- ○ Does not exist (the series diverges)

Question: 7   QID: 18233

Evaluate $\displaystyle\sum_{n=0}^{\infty} (-3)^{1-n}.$

- ○ −4
- ○ −9/4
- ○ −1/12
- ○ −9/2

Question: 8   QID: 19214

Evaluate the following as true or false.

If $\displaystyle\sum_{n=1}^{\infty} a_n b_n$ converges, then either

$\displaystyle\sum_{n=1}^{\infty} a_n$ or $\displaystyle\sum_{n=1}^{\infty} b_n$ converges.

- ○ true
- ○ false

Question: 9   QID: 18618

Evaluate the following as true or false.

If $\lim\limits_{n \to \infty} ca_n = b$ where $b \neq 0,$ then $\sum_{n=1}^{\infty} a_n$ diverges.

- ○ true
- ○ false

Question: 10   QID: 18384

Evaluate the following as true or false.

The series $\sum\limits_{n=1}^{\infty} \dfrac{1}{n^2 + 1}$ converges.

- ○ true
- ○ false

Question: 11   QID: 19007

Evaluate the following as true or false.

The series $\sum\limits_{n=1}^{\infty} \dfrac{1}{n^{1.01}}$ converges.

- ○ true
- ○ false

Question: 12   QID: 19022

Does the infinite series $\sum\limits_{n=1}^{\infty} \dfrac{\cos^2 n}{3^n}$ converge or diverge?

- ○ Converges
- ○ Diverges
- ○ Cannot be determined

Question: 13   QID: 19122

$\sum\limits_{n=1}^{\infty} \dfrac{4n}{n^3 + n - 1}$

Using the limit comparison test, determine whether the series converges or diverges.

- ○ The series converges.
- ○ The series diverges.
- ○ The test in inconclusive.

Question: 14   QID: 19005

What does the alternating series test

say about $\displaystyle\sum_{n=1}^{\infty} (-1)^{n+1} 10^{1/n}$?

○ Nothing, this is not an alternating series and therefore the alternating series test does not apply.

○ The series diverges because the a_n are not decreasing.

○ The series diverges because $\displaystyle\lim_{n\to\infty} a_n$ is not 0.

○ The series converges.

Question: 15   QID: 30071

Use the ratio test to test the convergence of

the series $\displaystyle\sum_{n=1}^{\infty} \frac{(-5)^{n+1} n}{2^n}$.

○ The series converges absolutely.

○ The series diverges.

○ The ratio test is inconclusive.

Question: 16   QID: 30072

Test the convergence of the series

$\displaystyle\sum_{n=2}^{\infty} (\ln n)\, e^{-(\sqrt{n}+n)}$.

○ The series converges absolutely.

○ The series diverges.