Math 121   Self-Assessment Quiz #3   Week 3

• Please see the course webpage for the answer key.

1. Compute $\displaystyle\lim_{x\to\infty} \left(\frac{6}{x}\right)^{\frac{1}{2+\ln x}} =$

2. Compute $\displaystyle\lim_{x\to 0} \frac{\cos(4x) - 1 - \arctan(4x) + 4x}{\ln(1-x) + \arcsin x} =$

3. $\displaystyle\lim_{x\to 0} \frac{1 - e^{-3x} - \arctan(3x)}{x^2}$

4. $\displaystyle\lim_{x\to\infty} \left(1 - \frac{2}{x^3}\right)^{7x^3}$

5. $\displaystyle\lim_{x\to\infty} \left(\arcsin\left(\frac{1}{x}\right) + e^{\frac{1}{x}}\right)^x$

6. Compute $\displaystyle\int_0^{\sqrt{3}} x\arctan x \; dx$

7. Show $\displaystyle\int_1^{e^4} \frac{\ln x}{\sqrt{x}} \; dx = 4e^2 + 4$