

## Answer Key

### Math 1272 Fall 2005 Final Exam

#### Multiple Choice Problems

1. E
2. C
3. B
4. E
5. C
  
6. A
7. C
8. C
  
9. E
10. B
11. E
12. A

#### Written Answer Problems

13. the first series diverges, the others converge
14.  $\pi$
15.  $\frac{1}{8} \cdot \left( \sin^{-1}(x^4) + x^4 \sqrt{1-x^8} \right) + C$
  
16.
  - a) a graph of the curve is shown below
  - b)  $\int_0^{2\pi} \sqrt{5+4\sin\theta} d\theta$
  - c)  $\pi - \frac{3\sqrt{3}}{2} \approx 0.5435$
  
17.
  - a)  $2x - 4y + 2z = 0$
  - b)  $\frac{x-1}{2} = \frac{y-2}{-4} = \frac{z-3}{2}$
  
18.
  - a) radius of convergence:  $R = 3$
  - b)  $f'(\sqrt{3}) = \tan^{-1}\left(\frac{\sqrt{3}}{3}\right) = \frac{\pi}{6}$

graph for #16(a):

