

1. $2 \ln |x| - \frac{1}{2} \ln(x^2 + 2) + C$
 2. $\frac{\tan^4 x}{4} + \frac{\tan^6 x}{6} + C$
 3. $\frac{9}{2}$
 4. $\frac{\sin^{-1}}{2} - \frac{x\sqrt{x^2-1}}{2} + C$
 5. $\sum_{n=0}^{\infty} \frac{(-1)^{n+1} x^{4n+1}}{(2n+1)!}$
 6. a) Convergent by integral test. b) not absolutely convergent. $\frac{\ln n}{n} > \frac{1}{n}$, for $n \geq 3$.
 7. Geometric series with $r = -\frac{2}{3}$ and $a = \frac{4}{3}$. Converges to $\frac{4}{5}$
 8. $(0, 2]$
 9. Let $\{S_n\}$ represent the sequence of partial sums. The series is convergent to L if and only if $\lim_{n \rightarrow \infty} S_n = L$.
 10. $\theta = \frac{2\pi}{3}, \frac{4\pi}{3}, A = \frac{10\pi}{3} + \frac{7\sqrt{3}}{2}$
 11. $y = 4x + 1$
 12. $\frac{13\sqrt{13}-8}{27}$
 13. $2e^2 - 2$
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