

1. Find a Maclaurin series for each function below by starting with the Maclaurin series formulas on the Formula Sheet.

(a) $\cos(\sqrt{x})$.

(b) $\frac{\sin x}{x}$.

2. Find an infinite series for the integral $\int_0^{\sqrt{\pi}} \sin(x^2) dx$.
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3. Find the radius and interval of convergence for the power series $\sum_{n=1}^{\infty} \frac{n^2(x-5)^n}{6^n}$.
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4. Find the radius and interval of convergence for the power series $\sum_{n=0}^{\infty} \frac{(-1)^n 3^n}{n!} x^n$.
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