

1. Give the Maclauren series for the function $f(x) = xe^{x^2}$.

$$e^x = 1 + x + \frac{x^2}{2} + \frac{x^3}{3!} + \frac{x^4}{4!} + \dots$$

$$e^{x^2} = 1 + x^2 + \frac{x^4}{2} + \frac{x^6}{3!} + \frac{x^8}{4!} + \dots$$

$$xe^{x^2} = x + x^3 + \frac{x^5}{2} + \frac{x^7}{3!} + \frac{x^9}{4!} + \dots$$

2. Give the terms of degree up to 5 for the Maclauren series of

$$\sec(x) = \frac{1}{\cos x}$$

$$\cos x = 1 - \frac{x^2}{2} + \frac{x^4}{4!} - \frac{x^6}{6!} + \dots$$

$$1 - \frac{x^2}{2} + \frac{x^4}{4!} - \frac{x^6}{6!} + \dots$$

$$1 + \frac{x^2}{2} + \frac{5x^4}{24} + \dots$$

$$1 - \frac{x^2}{2} + \frac{x^4}{4!} - \frac{x^6}{6!} + \dots$$

$$\frac{x^2}{2} - \frac{x^4}{4!} + \frac{x^6}{6!} + \dots$$

$$\frac{x^2}{2} - \frac{x^4}{4} + \frac{x^6}{2 \cdot 4!} + \dots$$

$$\frac{5}{24}x^4 + \dots$$

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