

Assignment Previewer

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**HW9-Due Mar 10 2009 M281
(526905)**[Show All](#)

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About this Assignment

Due: **Tue Mar 10 2009 08:00 PDT****1.** SCalc5 12.10.012. [294995] [Show Details](#)Find the Taylor series for $f(x)$ centered at the given value of a . (Assume that f has a power series expansion. Do not show that $R_n(x) \rightarrow 0$.)

$$f(x) = x^3, a = -1$$

 $f(x) =$ [symbolic formatting help](#)**2.** SCalc5 12.10.038. [294988] [Show Details](#)Use the Maclaurin series for $\sin x$ to compute $\sin(3^\circ)$ correct to five decimal places.**3.** SCalc5 12.10.044. [349848] [Show Details](#)

Use series to approximate the definite integral to within the indicated accuracy. Give your answer correct to 3 decimal places.

$$\int_0^{0.5} \cos(x^2) dx$$

4. SCalc5 12.10.046. [294989] [Show Details](#)

Use series to approximate the definite integral to within the indicated accuracy. Give your answer correct to 3 decimal places.

$$\int_0^{0.5} x^2 e^{-x^2} dx$$

$$|\text{error}| < 0.001$$

5. SCalc5 12.10.048. [294990] [Show Details](#)

Use series to evaluate the limit.

$$\lim_{x \rightarrow 0} \frac{1 - \cos x}{1 + x - e^x}$$

6. SCalc5 12.10.056. [295077] [Show Details](#)

Find the sum of the series.

$$\sum_{n=0}^{\infty} \frac{(-1)^n \pi^{2n}}{6^{2n} (2n)!}$$

7. SCalc5 12.10.058. [295186] [Show Details](#)

Find the sum of the series.

$$\sum_{n=0}^{\infty} \frac{3^n}{5^{n+1} n!}$$

8. SCalc5 12.10.060. [294996] [Show Details](#)

Find the sum of the series.

$$1 - \ln 2 + \frac{(\ln 2)^2}{2!} - \frac{(\ln 2)^3}{3!} + \dots$$

9. SCalc5 15.7.010. [295100] [Show Details](#)

Find the local maximum and minimum values and saddle point(s) of the function. If you have three-dimensional graphing software, graph the function with a domain and viewpoint that reveal all the important aspects of the function.

$$f(x, y) = 2x^3 + xy^2 + 5x^2 + y^2$$

Local minimum

f (,)

Local maximum

f (,)

Saddle points

(,) (smaller y value)

(,) (larger y value)

10. SCalc5 15.7.028. [295147] [Show Details](#)

Find the absolute maximum and minimum values of f on the set D .

$$f(x, y) = 3 + xy - x - 2y, D \text{ is the closed triangular region with vertices } (1, 0), (5, 0), \text{ and } (1, 4).$$

Absolute maximum

Absolute minimum

11. SCalc5 15.7.030. [294992] [Show Details](#)

Find the absolute maximum and minimum values of f on the set D .

$$f(x, y) = 4x + 6y - x^2 - y^2, D = \{(x, y) \mid 0 \leq x \leq 4, 0 \leq y \leq 5\}$$

Absolute maximum

Absolute minimum

12. SCalc5 15.7.032. [294937] [Show Details](#)

Find the absolute maximum and minimum values of f on the set D .

$$f(x, y) = xy^2, D = \{(x, y) \mid x \geq 0, y \geq 0, x^2 + y^2 \leq 3\}$$

Absolute maximum

Absolute minimum

13. SCalc5 15.7.038. [295108] [Show Details](#)

Find the point on the plane $x - y + z = 4$ that is closest to the point $(1, 2, 3)$.

(, ,)

14. HW9-1M281 [776966] [Show Details](#)

Problem 9.1. Let P be the plane $z = x + y + 1$. Find the distance from the origin to this plane by minimizing the function

$$f(x, y) = \sqrt{x^2 + y^2 + (x + y + 1)^2}.$$



The distance is (an answer .xxxx is desired)

15. HW9-2M281 [776967] [Show Details](#)

Problem 9.2. Let $f(x, y) = x^2 + 3x + y^2 + 3y + xy$. This function has 1 critical point at the point (A, B) . Find it and label it as a relative maximum ($C=1$), relative minimum ($C=-1$), or saddle point ($C=0$).



Questions
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is A

is B

is local min (-1), saddle point (0), or local maximum (1)

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