

Problem set 1

6th September 2006

due: Friday, September 15 at 5 PM in the box near 2103 Chamberlin

Problems

1. TM 1-42
2. TM 1-61
3. TM 1-62
4. a) Use Taylor series to find an approximation of $f(x) \equiv 1 - \cos x$ to second order in x when x is close to $x = 0$.
b) Plot the answer to part a) and $f(x)$ from $x = -1.5$ to $x = 1.5$ on the same graph.
5. TM 2-69
6. TM 2-83
7. TM 2-103
8. TM 2-108
9. TM 2-130
10. TM 3-62
11. TM 3-82
12. TM 3-102
13. Given

$$\vec{A} = \hat{x} + 2\hat{y} + 3\hat{z}$$

$$\vec{B} = 2\hat{x} - 2\hat{y} + 3\hat{z}$$

- a) Compute $\vec{A} \times \vec{B}$.
- b) Compute $|\vec{A} \times \vec{B}|$.
- c) Compute $(\vec{A} \times \vec{B}) \times \vec{A}$.
- d) Compute $\vec{A} \cdot \vec{B}$.