Quiz6, MAT 1375 Professor Chiu

ID:_____ Name: Sol

- This quiz consists of 2 sets of questions, each worth 5 points, for a total of 10 points.
- You have 10 minutes to complete the quiz.
- Scientific calculators are allowed.
- Wishing you success.

Ture or False questions:

1. T Given a function $f(x)$. If $f(-x) = f(x)$, then $f(x)$ is an even function.
2. F Given a function $f(x)$. If $f(-x) = -f(x)$, then $f(x)$ is an ~~even~~ odd function.
3. T The function $f(x) = x^3$ is an odd function.
4. T The parabola $y = -(x+2)^2$ is the reflection of $y = (x+2)^2$ about the x-axis.
5. F The parabola $y = x^2$ is the reflection of $y = x^2$ about the y-axis.

Show all your work and justify your answer:

6. Given a function $f(x) = 3x^4 - 4x^2 + 5$. Determine if the function f is even, odd, or neither.

To check if f(x) is even, odd, or neither, we first replace x by "−x" and get

$$f(-x) = 3\cdot(-x)^4 - 4(-x)^2 + 5$$
$$= 3x^4 - 4x^2 + 5.$$

Since $f(-x) = 3x^4 - 4x^2 + 5 = f(x)$, then f(x) is even.