# Quiz3, MAT1375 Professor Chiu

ID:_____ Name:_____

- This quiz consists of 10 questions for a total of 10 points.
- You have 10 minutes to complete the quiz.
- Wishing you success.

(5 points) True or False questions:

1. T The parabola $y = x^2 + 3$ is the parabola $y = x^2$ shifted up by 3 units.

2. F The graph of $f(x) = |x - 3| + 2$ is the absolute value function $f(x) = |x|$ shifted to the right by 3 units and down by 2 unit. (−2)

3. T Given a function $f(x)$. If $f(-x) = f(x)$, then $f(x)$ is an even function.

4. T The parabola $y = (x + 2)^2$ is the parabola $y = x^2$ shifted 2 units to the left.

5. T The parabola $y = -(x + 2)^2$ is the reflection of $y = (x + 2)^2$ about the $x$-axis.

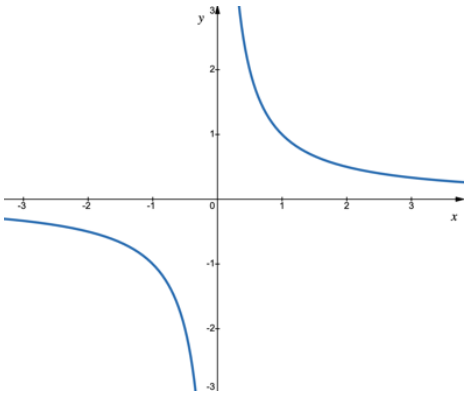
(2 points) Pair the functions (a)-(h) with the given graphs in the following question :

(a) $f(x) =$ constant. (e) $f(x) = x^2$.

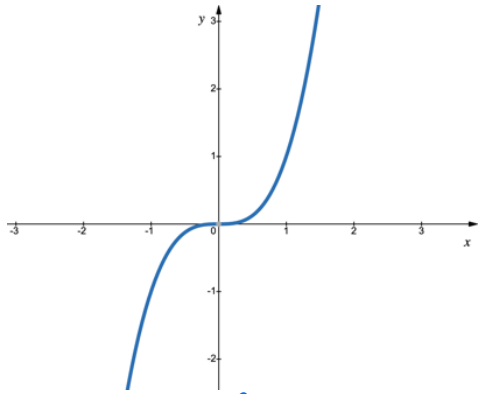
(b) $f(x) = |x|$. (f) $f(x) = \sqrt{x}$.

(c) $f(x) = x$. (g) $f(x) = x^3$.

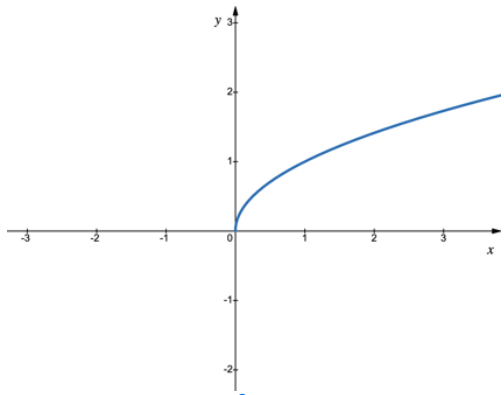
(d) $f(x) = \frac{1}{x}$. (h) $f(x) = \sqrt[3]{x}$.



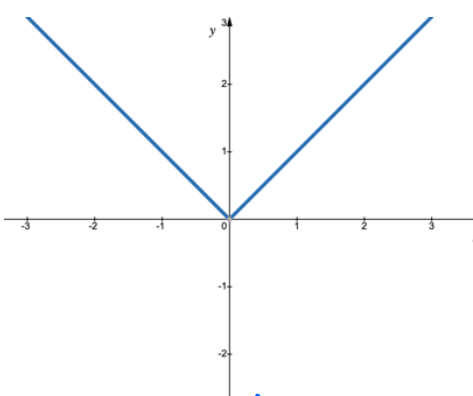
6. d



7. g



8. f



9. b

Please turn over and finish the rest of the question.

Show all your work and justify your answer:

(3 points)10. Given a function $f(x) = 3x^4 - 4x^2 + 5$. Determine if the function $f$ is even, odd, or neither.

Check $f(-x)$, we have

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

Since $f(-x) = 3x^4 - 4x^2 + 5 = f(x)$, by definition,

$f$ is even.

End of this quiz.