

Test1 Review, MAT 1375 Professor Chiu

- This review consists of 5 set of questions, each worth 20 points, for a total of 100 points.
- You have 60 minutes to complete the test
- Show all work and justify your answers.
- Scientific calculators are allowed.
- Wishing you success.

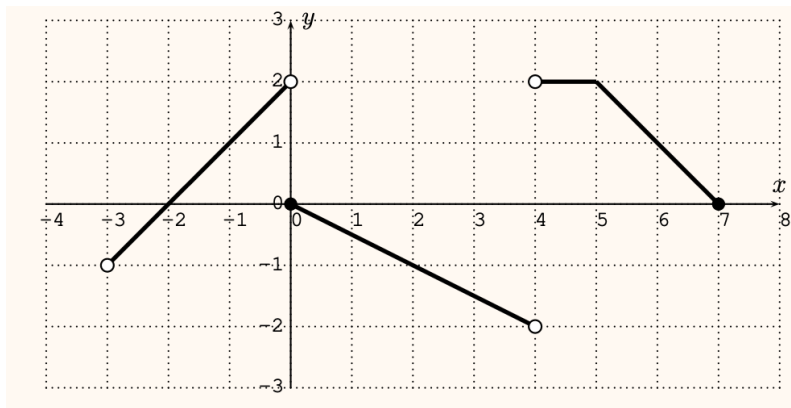
1. True or False questions:

- a) _____ The parabola $y = x^2 + 3$ is the parabola $y = x^2$ shifted up by 3 units.
- b) _____ $y^2 = x$ is a function of x .
- c) _____ Let $f(x)$ and $g(x)$ be two functions. Then $(f \circ g)(x) = (g \circ f)(x)$.
- d) _____ The function $f(x) = 3x^4 - 4x^2 + 5$ is even.
- e) _____ Let $f(x) = 7\sqrt{x}$ and $g(x) = 5\sqrt{x}$. Then the domain of $(f + g)(x)$ is $[0, \infty)$.

2. Given a function $f(x) = x^2 + 2x - 3$. Find $\frac{f(x+h)-f(x)}{h}$.

3. Consider the following graph of a function f .

- (a) What is the domain of f ?
- (b) What is the range of f ?
- (c) For which x is $f(x) < 1$?
- (d) Find $f(0) + 5$.
- (e) Find $f(4)$.



4. Let $f(x) = x - 2$ and $g(x) = x^2 - 7x + 10$. Find $\frac{f}{g}$ and state its domain.

5. Let $f(x) = \frac{3}{x+4}$ and $g(x) = x^2 - 5x$. Find $(f \circ g)(x)$ and state its domain.