

MA 100 SAMPLE MIDTERM

Please write your name on your blue book. Try to show your work and give justifications for your answers. You may use your calculator and one side of an 8 1/2 by 11 sheet of notes on this exam. You may not use a cell phone or computer. Try not to spend too much time on any single problem; if you get stuck on a problem leave a partial answer and move on to the next. If you have time left over at the end of the exam, try to check your work.

- (1) Answer the following questions for the graph shown above.
 - a) (5 pts) Is this the graph of a function? Why or why not?
 - b) (5 pts) Estimate which points on the graph have y coordinate -1 .
- (2) Let $g(x) = \frac{3x - 1}{x^2 - 4}$.
 - a) (5 pts) What is the domain of $g(x)$?
 - b) (5 pts) What are the zeros of $g(x)$?
 - c) (5 pts) What is the y -intercept of the graph of $g(x)$?
- (3) (10 pts) If $h(x) = x^2$, what is $h(x + 2)$? Sketch the graph of $h(x + 2)$.
- (4) (10 pts) Solve for x : $3x^{-2} + x^{-1} = 0$.
- (5) (10 pts) Simplify: $\frac{x + 2}{x - 3} \cdot \frac{2}{x^2 - 4}$.
- (6) (15 pts) What is the distance between the points $(1, 5)$ and $(4, 1)$?
- (7) (15 pts) True or false: If a line has a negative slope then any line perpendicular to that line has positive slope. Justify your answer.
- (8) (15 pts) Is it possible for a function to be both even and odd? Justify your answer.