NAME: _____

Instructions: The exam questions are closely related to the homework and to the examples shown in class. Make sure you review your WeBWorK assignments.
For more practice you are strongly encouraged to do the suggested homework from the textbook.

OpenLab: Please register for the OpenLab if you don't have an OpenLab account yet:
https://openlab.citytech.cuny.edu/
This is a very quick process once you know how to access your City Tech email.
One you are registered please visit our class site and click "join" (below the picture):
https://openlab.citytech.cuny.edu/groups/mat-1375-f18-ghezzi/
(you need to login to OpenLab to be able to join).
You will receive one point of extra-credit for becoming a member of our Open-Lab class site. Solutions to this review sheet and other important documents will be posted on this site.

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1. Rewrite the inequality $x < -1$ in interval notation.

2. Rewrite the inequality $-5 < x \leq \frac{1}{2}$ in interval notation.

3. Find $|\sqrt{2}|$.

4. Find $-|0|$.

5. Find $|-\pi|$.

6. If $f(5) = 11$, find $f^{-1}(11)$.

7. Solve the equation $|x| = 8$.

8. Solve the equation $|x| = -12$.

9. Solve the inequality $|x| \geq 2$. Give the answer in interval notation.

10. The parabola $y = x^2$ is shifted left by 3 units and down by 5 units. What is the equation of the shifted graph?

11. Given $f(x) = x^2 - 2x - 3$ and $g(x) = 2x - 8$, find:

    (a) $f(-1)$
    (b) $g(-4)$
    (c) $f(a)$
    (d) The domains of f and g. Write the answer in interval notation.
    (e) $(f + g)(5)$
    (f) $\left(\frac{f}{g}\right)(x)$
    (g) The domain of $\frac{f}{g}$. Write the answer in interval notation.
    (h) $\left(\frac{g}{f}\right)(x)$
    (i) The domain of $\frac{g}{f}$. Write the answer in interval notation.

(j) $(fg)(x)$.

(k) $(g \circ f)(2)$

(l) $(f \circ f)(0)$

(m) $(f \circ g)(x)$

(n) $(g \circ f)(x)$

12. Find the domain of $f(x) = \sqrt{3 - 5x}$. Write the answer in interval notation.

13. Solve the equation $|5x + 4| = 11$.

14. Find the inverse of the function $f(x) = 9x - 3$. Show all your work.

15. Given $f(x) = x^3 + 6x^2 + 9x + 1$, use your graphing calculator to find all zeros of the function, the local maximum (if any) and the local minimum (if any). Round your answers to the nearest hundredth.

16. Solve the inequality $|6x + 2| < 7$. Give the answer in interval notation.

17. Given $f(x) = x^2 - 4x - 2$, find and simplify the difference quotient $\dfrac{f(x + h) - f(x)}{h}$.