

Name: _____
Date: _____
Class: _____

Algebra
Unit 10
EC

To be eligible to receive extra credit on the unit test you must have a score below 75. To receive extra credit you must score an 80% or higher on this assignment (anything lower results in no extra credit). If you earn extra credit is calculated in the following manner: $\text{Old Test Score} + (75 - \text{Old Test Score})(2/3) = \text{New Test Score}$. This assignment will not be accepted late for any reason other than missing the day of school it is due in which case it must be turned in the next day you are in school even if you do not have class.

1) [4] Solve (answers to the nearest tenth): $7x^2 - 8x - 5 = 3x^2 - 5x + 7$

2) [4] Find the zeros of the following function (answers in simplest radical form):
 $f(x) = 8x^2 - 12x - 3$.

3) [4] Find the solution(s) to the system of equations:
 $y = x^2 + 8x + 15$ and $y = -x^2 - 4x + 1$.

4) [3] Describe all the shifts that $y = |x - 7| - 9$ would need to go through to become $y = -2|x - 19| + 14$.

5) [3] Write a function $\rightarrow g(x) \leftarrow$ that would perform the following transformations to $f(x) = \sqrt{x-6} - 7$. Vertical compression with a factor of $\frac{1}{2}$, shifted down 9, and shifted to the left 6.

6) [4] Place the following function into vertex form: $t(x) = 7x^2 - 10x - 19$.

7) [3] Place the following function in to vertex form and state the transformations $y(x) = x^2$ would need to go through to become it: $u(x) = x^2 - 8x + 14$

8) [4] A rock is thrown into the air and its height above the ground after t seconds can be modeled by the equation $h(t) = -t^2 + 6t + 100$. How long is it (to the nearest hundredth) until the rock lands on the ground and how far did it fall from its highest point until it hit the ground?