Name:⎯⎯

> This quiz is worth 50 points. There are 8 questions and you have 30 minutes to complete them. Attempt all questions and show all *neccessary* work. Do not just word vomit. If you get stuck and cannot answer a question, write down, using words, what you would *like* to do and you may receive partial credit. Any questions, just ask. Calculators are **not** allowed.

1. (7 points) In a certain Algebra class there is a total of 300 possible points. These points come from 6 homework sets, that are worth 25 points each, and 3 exams, that are worth 50 points each. A student has received homework scores of 20, 15, 19, 11, 17 and 18 and the first two exam scores are 37 and 32. Assume that grades are assigned according to the standard scale (A= 90%, B= 80%, etc.) and there are no weights assigned to any of the grades.

   (a) Is it possible for the student to receive an A in the class? If so what is the minimum score on the third exam that will give an A?

   Answer:⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

   (b) Is it possible for the student to receive a B in the class? If so what is the minimum score on the third exam that will give an B?

   Answer:⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

2. (5 points) We want to fence in a field whose length is twice the width and we have 90 feet of fencing material. If we use all the fencing material what would the dimensions of the field be?

   Answer:⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯⎯

3. (8 points) If $1,000 is to be invested at an interest rate of 3.6% per year, find the models that represent the amount of the investment $A(t)$ for the following compounding methods;

   (a) Semiannually:

   (c) Monthly:

   Answer:_____

   Answer:_____

   (b) Quarterly:

   (d) Continuously:

   Answer:_____

   Answer:_____

4. (6 points) Fill in the table below:

$\log_a (xy) =$	$\log_a \left(\frac{x}{y} \right) =$	$\log_a (x^n) =$
$\log_a(1) =$	$\log_a(a) =$	$a^{\log_a(x)} =$

5. (8 points) In each of the following, find the value of a.

   (a) $\log_3(81) = a$

   (c) $\log_a(64) = 6$

   Answer:_____

   Answer:_____

   (b) $\log_7(a) = 3$

   (d) $\log_4 \left(\frac{1}{8} \right) = a$

   Answer:_____

   Answer:_____

6. (6 points) Solve the following equations.

   (a) $2^{3a+5} = 2^{2a+7}$

   Answer:_____

   (b) $\log_2 (a+1) + \log_2(a-1) = \log_2(3)$

   Answer:_____

7. (4 points) Compute $f(g(x))$ if $f(x) = \dfrac{1}{1+2x+x^2}$ and $g(x) = x+1$.

   Answer:_____

8. (6 points) Find the inverse of $f(x) = \dfrac{6+x}{9-x}$.

   Answer:_____

The End.