Math 156 PRECALCULUS
Fall 2015

# Quiz 5 – Make up

Wednesday, 28 October 2015

Name:_____

This quiz has 6 problems worth a total of 30 points. It is TWO SIDED.

1. The amount of copper ore produced from a copper mine in Arizona is modeled by the function $f(x) = 200 + 32x$ where $x$ is the number of years since 2005 and $f(x)$ is measured in thousands of tons.

   (a) (3 points) Find $f(1)$ and explain what this means in terms of the problem (That is, your explaination should have the words *years* and *tons of copper*).

   (b) (3 points) Explain what the 32 represents in terms of the problem (That is, your explaination should have the words *years* and *tons of copper*)

2. (3 points each) For each function below, sketch the graph. (For people with limited art skills, like me, you are welcome to augment your picture with an explanation of the standard function you are transforming and how you are transforming it. For example, one might write, "This is the parabola $y = x^2$ translated 2 units to the left and stretched horizontally by a factor of 3.")

   (a) $y = \sqrt[3]{x} - 2$

   (b) $y = -|x - 2|$

3. (4 points) Express the function $H(x) = (2x - 4)^3$ in the form $f \circ g$ in a nontrivial way. (That is, you are not allowed to choose $f(x) = x$ or $g(x) = x$.

4. (4 points) For $f(x) = \frac{1}{x}$ and $g(x) = \frac{x}{x-5}$, find $(g \circ f)(x)$ and its domain.

5. (4 points) Use the Inverse Function Property to show that $f(x) = x^3 + 1$ and $g(x) = (x-1)^{1/3}$ are inverses of each other

6. (3 points each) Find the inverse functions below:

   (a) $f(x) = \frac{3x}{x-2}$

   (b) $g(x) = 2 + \sqrt{x+3}$.