Name: _____ Academic Integrity Signature: _____

I have abided by the UNCG Academic Integrity Policy.

Note: Correct numerical answers without justification will receive little or no credit.

1. (3 points) (The derivative rule for inverses) If f has an interval I as domain and $f'(x)$ exists and is never zero on I, then f^{-1} is differentiable at every point in its domain (the range of f). The value of $(f^{-1})'$ at a point $b = f(a)$ in the domain of f^{-1} is

$$(f^{-1})'(b) = \boxed{}.$$

Solution: $(f^{-1})'(b) = \dfrac{1}{f'(a)}$

2. (3 points) (Derivative of natural logarithm)

$$\frac{d}{dx}\left(\ln|x|\right) = \boxed{}$$

Solution: $\frac{d}{dx}\left(\ln|x|\right) = \dfrac{1}{x}$

3. (3 points) (Derivative of exponential)

$$\frac{d}{dx}\left(5^x\right) = \boxed{}$$

Solution: $\frac{d}{dx}\left(5^x\right) = \ln(5)5^x$

4. (1 point) (Fall break) What did you do over Fall break?

Solution: Work.

 Points earned: _____ out of 10.