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. (5 points) (Quotient Rule) Let $u$ and $v$ be differentiable functions. The derivative of the quotient, $\frac{d}{dx}\left(\frac{u}{v}\right)$ is

**Solution:**

$$\frac{d}{dx}\left(\frac{u}{v}\right) = \frac{vu' - uv'}{v^2}.$$

2. (5 points) (Computation) Let $f(x) = 3x^2 - 2x + \sqrt{x} - e^{\pi} + 3\sqrt{2}$. Compute $f'(x)$.

**Solution:** Note that $e^{\pi}$ and $3\sqrt{2}$ are constants and so have derivative equal to 0. We can write $\sqrt{x}$ as $x^{1/2}$ and use the power rule to differentiate the remaining terms.

$$f'(x) = 6x - 2 + \frac{1}{2}x^{-1/2}.$$

 Points earned: _____ out of 10.