

Name: _____

Score: _____ / 25 Points

1. (_____ / 10 points) Storm, a company that manufactures bowling equipment and accessories, operates a business location that sells bowling balls. This particular location sells 4000 bowling balls annually. Suppose that it costs \$6.00 to store a bowling ball for one year. Also, each bowling ball costs \$95.00 to manufacture. Lastly, the Storm company incurs a fixed cost of \$270.00 per order for delivering bowling balls to this location. Storm wishes to minimize its inventory cost for this store. Determine a formula for $IC(x)$, the inventory cost function, where x represents the number of bowling balls per order. Completely simplify your answer to receive full credit. **Note: You are being asked for the formula only and you are not required to do anything else here.**

2. (_____ / 15 points) Consider the equation

$$5x^2y^4 - 2x^3 = x + y + 1$$

Compute $\frac{dy}{dx}$ by the method of implicit differentiation. Then give the exact value of $\frac{dy}{dx}\bigg|_{(1,1)}$.