

Please write neatly and circle your final answers. There is another question on the back of this page.

**1.** (*4 points*) Answer the following questions. **No** partial credit will be given, and you **do not** need to show your work.

1. True or false? Please circle your answer.

(a) If  $f'(x) = x^3$ , then  $f(x) = \frac{1}{4}x^4$ .

**True**

**False**

(b)  $\sqrt{x^2} = x$ .

**True**

**False**

2. Let  $f(x) = \ln\left(\cos(x) * \frac{1}{x^3} * 2^x\right)$ . What is  $f'(x)$ ? Hint: first rewrite  $f(x)$  using a logarithm identity.

**2.** (6 points) Answer the following question. Partial credit **will** be given, and you **must** show your work.

Compute the area of the region above the line  $y = 1$ , to the left of the line  $x = 3$ , and below the curve  $y = xe^{x^2} + 1$ . Hint: It may help to sketch the region.