

1. (3 pts each) Circle true or false. No explanation necessary.

True or False: If $0 < f(x) < g(x)$ for all x , then $\int_1^4 \frac{g(x)}{f(x)} dx > 3$.

True or False: $\int_{\pi}^{\pi} \frac{\sin^2(x^5) - \cos(42x)}{x^2 + x + 1} dx > 2$.

True or False: $\int_1^{\infty} \frac{1}{x^{71}} dx$ converges.

True or False: If $g(x) + 2$ is an antiderivative of $f(x)$, then $g(x)$ is also an antiderivative of $f(x)$.

2: (6 pts) State the construction theorem for antiderivatives, also known as the second fundamental theorem of Calculus. Your answer should be a complete statement.