Name: $\qquad$
30 minutes maximum. 24 points possible; each part is worth 2 points. No aids (book, notes, calculator, phone, etc.) are permitted. Show all work and use proper notation for full credit. Answers should be in reasonably-simplified form.

1. [12 points] Compute the derivatives of the following functions.
a. $f(x)=e^{2} x^{1 / 2}+2 e^{x}+\sqrt{9}$
b. $f(x)=\ln \left(\cos \left(x^{3}\right)-4 x^{7}\right)$
c. $h(x)=\sin \left(k x^{2}-5\right)$ where $k$ is a constant
d. $f(x)=\sec \left(x e^{x}\right)$
e. $y=\frac{\cos (2 x)}{x^{5}+\pi}$
f. Find $\frac{d y}{d x}$ if $e^{y} \cos (x)=x y+1$. You must solve for $\frac{d y}{d x}$.

Math 252: Quiz 1
2. [12 points] Compute the following antiderivatives (indefinite integrals) and definite integrals. Remember that antiderivatives need a " $+C$ ".
a. $\int \frac{(1+x)^{2}}{2 x} d x$
b. $\int(x-1) e^{\left((x-1)^{2}\right)} d x$
c. $\int_{0}^{\pi} 5 e^{x}+3 \sin (x) d x$

Math 252: Quiz 1
d. $\int x \sqrt{x+5} d x$
e. $\int \frac{\cos (\ln x)}{x} d x$
f. $\int \frac{\sec ^{2}(x)}{\tan ^{2}(x)} d x$

