

1. $\frac{d}{dx}(\cosh x) = ?$

$\sinh(x)$

2. $f(x, y, z) = \cos xe^y z$, find $\frac{\partial f}{\partial x}$, $\frac{\partial^2 f}{\partial x \partial y}$, $\frac{\partial^3 f}{\partial x \partial y \partial z}$.

$\frac{\partial f}{\partial x} = -\sin xe^y z$

$\frac{\partial^2 f}{\partial x \partial y} = -\sin xe^y z$

$\frac{\partial^3 f}{\partial x \partial y \partial z} = -\sin xe^y$

3. $\int_0^{2p} \cos 2x \cos x dx = ?$

0

4. $\int_0^{2p} \sin 2x \sin 2x dx = ?$

p

5. $\int_0^1 \int_0^y 1 dx dy = \int_0^1 \int_x^1 dy dx = ?$

$\int_0^1 \int_0^y 1 dx dy = \int_0^1 y dy = \frac{1}{2}$

$\int_0^1 \int_0^x dy dx$

6. If $y = \sqrt{1-x^2}$, find the arc length from (0,1) to(1,0).

$x = \sin(t)$

$y = \cos(t)$

$ds = \sqrt{\left(\frac{dx}{dy}\right)^2 + \left(\frac{dy}{dt}\right)^2} dt = dt$

$\int_0^{\frac{p}{2}} ds = \int_0^{\frac{p}{2}} dt = \frac{p}{2}$