

DIFFERENTIATION WORKSHEET V

Find the following derivatives:

(1) $\frac{d}{dx}e^{1/x}$

(2) $\frac{d}{dt}(3^t \cos(t^2))$

(3) $\frac{d}{dy} \left(\frac{\ln(\sin(y))}{\arctan(y)} \right)$

(4) $(\sin(2x^2 + e^x))'$

(5) $(5\sqrt{4x^5 - 4x + 6})'$

Calculate $\frac{dy}{dx}$ for the following curves and the equation of the tangent line, if it exists, at $(0, 2)$.

(1) $x^2 + y^2 = 4$

(2) $2 \cos(x) + xy = 4 + y - y^2$

(3) $x^3 - 3y^2 + 5 = 0$