Lecture Eleven Practice

Practice problems

Abstract. *Practice problems for Lecture Eleven Content*

Problem. 1 : Implicitly derive the expression $6\,x^3y^2 = -1$ and solve for $\frac{dy}{dx}$.

$$\frac{dy}{dx} = \boxed{}\ ?$$

Problem. 2 : Implicitly derive the expression $4x^3y^3 = -2y$ and solve for $\frac{dy}{dx}$.

$$\frac{dy}{dx} = \boxed{}\ ?$$

Problem. 3 : Implicitly derive the expression $7\,\sin\left(xy^2\right) = 5$ and solve for $\frac{dy}{dx}$.

$$\frac{dy}{dx} = \boxed{}\ ?$$

Problem. 4 : Implicitly derive the expression $\cos(x^2y^2) = 3x$ and solve for $\frac{dy}{dx}$.

$$\frac{dy}{dx} = \boxed{}\ ?$$

Problem. 5 : Implicitly derive the expression $9\,x^2\,\sin(y) = xy$ and solve for $\frac{dy}{dx}$.

$$\frac{dy}{dx} = \boxed{}\ ?$$

Problem. 6 : Compute the following derivative:

$$\frac{d}{dx}(4\,\arccos(-5\,x)) = \boxed{}\ ?$$

Problem. 7 : Compute the following derivative:

$$\frac{d}{dx}(-3\,\arcsin(3\,x)) = \boxed{}\ ?$$

Problem. 8 : Implicitly derive the expression $8\,e^{(xy)} = -2$ and solve for $\frac{dy}{dx}$.

$$\frac{dy}{dx} = \boxed{}\ ?$$

Problem. 9 : Implicitly derive the expression $9\,e^{(x^3y^3)} = y^2$ and solve for $\frac{dy}{dx}$.

$$\frac{dy}{dx} = \boxed{}\ ?$$

Problem. 10 : Implicitly derive the expression $3\,xe^{(x^2y^2)} = x^2$ and solve for $\frac{dy}{dx}$.

$$\frac{dy}{dx} = \boxed{}\ ?$$

Problem. 11 : Compute the following derivative:

$$\frac{d}{dx}\left(-\arctan\left(x^2\right)\right) = \boxed{}\ ?$$

Problem. 12 : Compute the following derivative:

$$\frac{d}{dx}\left(-2\ \operatorname{arcsec}(x+1)\right) = \boxed{}\ ?$$