1. $3x^2+4y^2=9$

$\frac{d}{dx}(3x^2)+\frac{d}{dx}(4y^2)=\frac{d}{dx}(9)$

$6x+8yy'=0$

$8yy'=-6x$

$\frac{8yy'}{8y}=\frac{-6x}{8y}$

$y'=\frac{-3x}{4y}$

2. $x^3y+y^4x^2=5$

$\frac{d}{dx}(x^3y)+\frac{d}{dx}(y^4x^2)=\frac{d}{dx}(5)$

P Q P Q

$P'=3x^2 \quad Q'=1\cdot y' \qquad P'=4y^3y' \quad Q'=2x$

$P'Q+PQ' \qquad P'Q+PQ'$

$3x^2y+x^3y'+4y^3y'x^2+y^4\cdot 2x=0$

$x^3y'+4x^2y^3y'=-3x^2y-2xy^4$

$y'(x^3+4x^2y^3)=-3x^2y-2xy^4$

$\frac{y'(x^3+4x^2y^3)}{x^3+4x^2y^3}=\frac{-3x^2y-2xy^4}{x^3+4x^2y^3}$

$y'=\frac{x(-3xy-2y^4)}{x(x^2+4xy^3)}$

$y'=\frac{-3xy-2y^4}{x^2+4xy^3}$