3. $4xy^4 - x^3y = -5$

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

P Q F G

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

$P'Q+PQ' \qquad F'G+FG'$

$4[1\cdot y^4 + x\cdot 4y^3y'] - [3x^2y + x^3y'] = 0$

$4(y^4 + 4xy^3y') - 3x^2y - x^3y' = 0$

$4y^4 + 16xy^3y' - 3x^2y - x^3y' = 0$

$16xy^3y' - x^3y' = 3x^2y - 4y^4$

$y'(16xy^3 - x^3) = 3x^2y - 4y^4$

$\frac{y'(16xy^3 - x^3)}{16xy^3 - x^3} = \frac{3x^2y - 4y^4}{16xy^3 - x^3}$

$y' = \frac{3x^2y - 4y^4}{16xy^3 - x^3}$

4. $\frac{x^2y - y^5}{y^2 - 3x} = 2$

$(y^2 - 3x)\left(\frac{x^2y - y^5}{y^2 - 3x}\right) = 2(y^2 - 3x)$

$x^2y - y^5 = 2y^2 - 6x$

P Q

$P'=2x \quad Q'=1\cdot y'$

$P'Q + PQ'$

$2xy + x^2y' - 5y^4y' = 4yy' - 6$

$x^2y' - 5y^4y' - 4yy' = -2xy - 6$

$y'(x^2 - 5y^4 - 4y) = -2xy - 6$

$\frac{y'(x^2 - 5y^4 - 4y)}{x^2 - 5y^4 - 4y} = \frac{-2xy - 6}{x^2 - 5y^4 - 4y}$

$y' = \frac{-2xy - 6}{x^2 - 5y^4 - 4y}$