

LÖSUNG ZU 607:

a)  $2xy = 5$

$$2y + 2xy' = 0 \quad / - 2y$$

$$2xy' = -2y \quad / : 2$$

$$xy' = -y \quad / : x$$

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

b)  $-3x^2y = 5$

$$-6xy - 3x^2y' = 0 \quad / + 6xy$$

$$-3x^2y' = 6xy \quad / : (-3)$$

$$x^2y' = -2xy \quad / : x^2$$

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

c)  $5x^3y + 2y^3 = 4$

$$15x^2y + 5x^3y' + 6y^2y' = 0$$

$$15x^2y + 5x^3y' + 6y^2y' = 0 \quad / - 15x^2y$$

$$y' \cdot (5x^3 + 6y^2) = -15x^2y$$

$$y' = -\frac{15x^2y}{5x^3 + 6y^2}$$

d)  $2x^2y - 3y^3 = x$

$$4xy + 2x^2y' - 9y^2y' = 1 \quad / - 4xy$$

$$y' \cdot (2x^2 - 9y^2) = 1 - 4xy \quad / : (2x^2 - 9y^2)$$

$$y' = \frac{1 - 4xy}{2x^2 - 9y^2}$$

e)  $2y + 3x^2y = 5$

$$2y' + 6xy + 3x^2y' = 0 \quad / - 6xy$$

$$y' \cdot (2 + 3x^2) = -6xy \quad / : (2 + 3x^2)$$

$$y' = \frac{-6xy}{2 + 3x^2}$$

f)  $-3x^3y^2 + 2y = 2$

$$-9x^2y^2 - 6x^3yy' + 2y' = 0 \quad / + 9x^2y^2$$

$$-y' \cdot (6x^3y - 2) = 9x^2y^2 \quad / : (6x^3y - 2)$$

$$-y' = \frac{9x^2y^2}{6x^3y - 2} \quad / \cdot (-1)$$

$$y' = \frac{-9x^2y^2}{6x^3y - 2}$$

