

DIE AUFGABEN

Sie sollten Aufgaben der Art, wie sie in den Serien 6 und 9 vorkommen, vorher studieren!

$$1 \quad \frac{25a^2 - 1}{3} : (5a + 1) =$$

$$2 \quad \frac{m^2 - m - 12}{a^2} : \frac{m - 4}{a^2 - a} =$$

$$3 \quad (1 - p) : \frac{4(p - 1)}{3} =$$

$$4 \quad \frac{a + b}{c} : (2a + 2b) =$$

$$5 \quad \frac{15}{a + b} : \frac{3}{a + b} =$$

$$6 \quad \frac{12x - 12y}{a + b} : 12a =$$

$$7 \quad \frac{xy - y^2}{x + y} : \frac{3x + 3y}{x - y} =$$

$$8 \quad (m^2 - n^2) : \frac{m + n}{m - n} =$$

$$9 \quad \frac{162a^9}{a^2 + ab - 2b^2} : \left(-\frac{36a^3}{a - b} \right) =$$

$$10 \quad \frac{a^4 - 1}{ac - c^2} : \frac{4a + 4}{a^2 - ac - ab + bc} =$$

$$11 \quad (a - b)(a - c) : \frac{a^2 - b^2}{a - c} =$$

$$12 \quad \frac{m^2 - m}{m + 2} : \frac{m^2 - 1}{4m + 8} =$$

DIE LÖSUNGEN

$$1 \quad \frac{25a^2 - 1}{3} : (5a + 1) = \frac{25a^2 - 1}{3} : \frac{5a + 1}{1} = \frac{(5a + 1)(5a - 1)}{3} \cdot \frac{1}{5a + 1} = \frac{5a - 1}{3}$$

$$2 \quad \frac{m^2 - m - 12}{a^2} : \frac{m - 4}{a^2 - a} = \frac{(m - 4)(m + 3)}{a^2} \cdot \frac{a(a - 1)}{m - 4} = \frac{(a - 1)(m + 3)}{a}$$

$$3 \quad (1 - p) : \frac{4(p - 1)}{3} = \frac{1 - p}{1} \cdot \frac{3}{4(p - 1)} = \frac{-(-1 + p) \cdot 3}{4(p - 1)} = -\frac{3}{4}$$

$$4 \quad \frac{a + b}{c} : (2a + 2b) = \frac{a + b}{c} \cdot \frac{1}{2(a + b)} = \frac{1}{2c}$$

$$5 \quad \frac{15}{a + b} : \frac{3}{a + b} = \frac{15}{a + b} \cdot \frac{a + b}{3} = 5$$

$$6 \quad \frac{12x - 12y}{a + b} : 12a = \frac{12(x - y)}{a + b} \cdot \frac{1}{12a} = \frac{x - y}{a(a + b)}$$

$$7 \quad \frac{xy - y^2}{x + y} : \frac{3x + 3y}{x - y} = \frac{y(x - y)}{x + y} \cdot \frac{x - y}{3(x + y)} = \frac{y(x - y)^2}{3(x + y)^2}$$

$$8 \quad (m^2 - n^2) : \frac{m + n}{m - n} = \frac{(m + n)(m - n)}{1} \cdot \frac{m - n}{m + n} = (m - n)^2$$

$$9 \quad \frac{162a^9}{a^2 + ab - 2b^2} : \left(-\frac{36a^3}{a - b}\right) = -\frac{162a^9}{(a - b)(a + 2b)} \cdot \frac{a - b}{36a^3} = -\frac{9a^6}{2(a + 2b)}$$

$$10 \quad \frac{a^4 - 1}{ac - c^2} : \frac{4a + 4}{a^2 - ac - ab + bc} = \frac{(a^2 + 1)(a + 1)(a - 1)}{c(a - c)} \cdot \frac{(a - b)(a - c)}{4(a + 1)} = \frac{(a^2 + 1)(a - 1)(a - b)}{4c}$$

$$a^4 - 1 = (a^2 + 1)(a^2 - 1) = (a^2 + 1)(a + 1)(a - 1)$$

$$a^2 - ac - ab + bc = a(a - c) - b(a - c) = (a - b)(a - c)$$

$$11 \quad (a - b)(a - c) : \frac{a^2 - b^2}{a - c} = \frac{(a - b)(a - c)}{1} \cdot \frac{a - c}{(a - b)(a + b)} = \frac{(a - c)^2}{a + b}$$

$$12 \quad \frac{m^2 - m}{m + 2} : \frac{m^2 - 1}{4m + 8} = \frac{m(m - 1)}{m + 2} \cdot \frac{4(m + 2)}{(m + 1)(m - 1)} = \frac{4m}{m + 1}$$