

$$1. a) 18ab^2 + 24ab + 8b = 2b(9ab + 12a + 4) = 2a(9b + 12) + 8b$$

$$b) \text{kgV}(4a^4 - 4a^2b^2, 35a^2b^2 - 35b^4) = 140a^2b^2(a^2 - b^2)$$

$$c) b \neq -2a \quad b \neq 0$$

$$2a) \frac{3a^2 + 8}{(3a+4)(3a-4)} + \frac{1-3a}{9a+12} = \frac{9a^2 + 24 + (1-3a)(3a-4)}{3(3a-4)(3a+4)} =$$

$$= \frac{9a^2 + 24 + 3a - 4 - 9a^2 + 12a}{3(3a-4)(3a+4)} = \frac{15a + 20}{3(3a-4)(3a+4)} =$$

$$= \frac{5(3a+4)}{3(3a-4)(3a+4)} = \frac{5}{3(3a-4)}$$

$$P: \frac{5}{6} = \frac{5}{6}$$

$$b) \frac{a}{2b^2(a+1)} - \frac{3}{6b^2} + \frac{2ab}{2b^2(a+b)(a-b)} =$$

$$= \frac{3a(a^2-b^2) - 3(a+1)(a^2-b^2) + 2ab \cdot 3 \cdot (a+1)}{6b^2(a+1)(a^2-b^2)} =$$

$$= \frac{3a^3 - 3ab^2 - 3a^3 - 3ab^2 - 3a^2 + 3b^2 + 6a^2b + 6ab}{6b^2(a+1)(a^2-b^2)} = \frac{-3a^2 + 3b^2 + 6a^2b + 6ab}{6b^2(a+1)(a^2-b^2)}$$

$$P: \frac{1}{2} = \frac{1}{2} \quad \frac{-3 \cdot 4 + 3 + 6 \cdot 4 + 6 \cdot 2}{6 \cdot (3) \cdot 3} = \frac{-12 + 3 + 24 + 12}{54} = \frac{27}{54} = \frac{1}{2}$$

$$3) S^2 = a^2 + h^2$$

$$V = 6 \cdot \frac{a}{4} \cdot \sqrt{3} \cdot h \cdot \frac{1}{3}$$

$$h_n^2 = S^2 - \left(\frac{a}{2}\right)^2$$

$$7^2 = 2,5^2 + h^2$$

$$V = 35,3898$$

$$h_n = 6,89$$

$$h = 6,54$$

$$M = 6 \cdot a \cdot h_n \cdot \frac{1}{2} = 3ah_n$$

$$M = 51,66 \approx 1292 \text{ Dachziegel}$$

$$V = \left( 270 \cdot 150 - \frac{60 \cdot 150}{2} - \frac{50 \cdot 100}{2} \right) \cdot 170$$

$$V = 5,695 \text{ m}^3 \quad \Rightarrow \quad 113,9 \text{ m}^3/\text{h} \Rightarrow 5,2677 \text{ h}$$

$$= 5 \text{ h } 16'$$