

Pythagoras in ebenen Figuren – Lösungen

11) $d = 2 \cdot r = 2 \cdot 71 = 142 \text{ mm}$

$$s^2 + s^2 = d^2 \rightarrow 2s^2 = d^2 \quad / : 2 \rightarrow s^2 = \frac{d^2}{2} \quad / \sqrt{\quad} \rightarrow s^2 = \sqrt{\frac{d^2}{2}} = \sqrt{\frac{142^2}{2}} = \sqrt{10\,082} = 100 \text{ mm}$$

$$A = s^2 = 100^2 = 10\,000 \text{ mm}^2 = 100 \text{ cm}^2$$

12) $A = \frac{c \cdot h_c}{2} = \frac{5,50 \cdot 2,52}{2} = \frac{13,86}{2} = 6,93 \text{ m}^2$ $x = \frac{c}{2} = \frac{5,50}{2} = 2,75 \text{ m}$

$$s = \sqrt{x^2 + h^2} = \sqrt{2,75^2 + 2,52^2} = \sqrt{7,5625 + 6,3504} = \sqrt{13,9129} = 3,73 \text{ m} + 0,35 \text{ m} = 4,08 \text{ m}$$

13) $c = 50 + 135 + 35 = 220 \text{ cm}$ $A_{\text{Trapez}} = \frac{(a+c) \cdot h}{2} = \frac{(135+220) \cdot 120}{2} = \frac{42\,600}{2} = 21\,300 \text{ cm}^2$

$$x = \sqrt{120^2 + 50^2} = \sqrt{14\,400 + 2\,500} = \sqrt{16\,900} = 130 \text{ cm}$$

$$y = \sqrt{120^2 + 25^2} = \sqrt{14\,400 + 1\,225} = \sqrt{15\,625} = 125 \text{ cm}$$

14) $A_{\text{Trapez}} = \frac{(a+c) \cdot h}{2} = \frac{(31+17) \cdot 34}{2} = \frac{1\,632}{2} = 816 \text{ m}^2$

$$y = 31 - 17 = 14 \text{ m} \quad x = \sqrt{34^2 + 14^2} = \sqrt{1\,156 + 196} = \sqrt{1\,352} = 36,8 \text{ m}$$

$$u = 31 + 34 + 36,8 + 17 = 118,8 \text{ m}$$