

Aufgabe 1:

a) $d^2 = a^2 + b^2 + c^2 \quad | -a^2 - b^2$
 $c^2 = d^2 - a^2 - b^2$
 $c^2 = (49\text{mm})^2 - (42\text{mm})^2 - (14\text{mm})^2$
 $c^2 = 2401\text{mm}^2 - 1764\text{mm}^2 - 196\text{mm}^2$
 $c^2 = 441\text{mm}^2 \quad |\sqrt{}$
 $|c| = \underline{\underline{21\text{mm}}}$

$d_1^2 = a^2 + b^2$
 $d_1^2 = 1764\text{mm}^2 + 196\text{mm}^2$
 $d_1^2 = 1960\text{mm}^2 \quad |\sqrt{}$
 $|d_1| \approx \underline{\underline{44,27\text{mm}}}$

$d_2^2 = b^2 + c^2$
 $d_2^2 = 196\text{mm}^2 + 441\text{mm}^2$
 $d_2^2 = 637\text{mm}^2 \quad |\sqrt{}$
 $|d_2| = \underline{\underline{25,24\text{mm}}}$

$d_3^2 = c^2 + a^2$
 $d_3^2 = 441\text{mm}^2 + 2401\text{mm}^2$
 $d_3^2 = 2842\text{mm}^2 \quad |\sqrt{}$
 $|d_3| = \underline{\underline{53,31\text{mm}}}$

$$b) \quad d^2 = a^2 + b^2 + c^2 \quad | -a^2 - c^2$$

$$b^2 = d^2 - a^2 - c^2$$

$$b^2 = (160 \text{ mm})^2 - (75 \text{ mm})^2 - (96 \text{ mm})^2$$

$$b^2 = 25600 \text{ mm}^2 - 5625 \text{ mm}^2 - 9216 \text{ mm}^2$$

$$b^2 = 10759 \text{ mm}^2 \quad | \sqrt{}$$

$$b = \underline{103,73 \text{ mm}}$$

$$d_1^2 = a^2 + b^2$$

$$d_1^2 = 5625 \text{ mm}^2 + 10759 \text{ mm}^2$$

$$d_1^2 = 16384 \text{ mm}^2 \quad | \sqrt{}$$

$$|d_1| = \underline{128 \text{ mm}}$$

$$d_3^2 = c^2 + a^2$$

$$d_3^2 = 9216 \text{ mm}^2 + 5625 \text{ mm}^2$$

$$d_3^2 = 14841 \text{ mm}^2 \quad | \sqrt{}$$

$$|d_3| = \underline{121,82 \text{ mm}}$$

$$d_2^2 = b^2 + c^2$$

$$d_2^2 = 10759 \text{ mm}^2 + 9216 \text{ mm}^2$$

$$d_2^2 = 19975 \text{ mm}^2 \quad | \sqrt{}$$

$$|d_2| = \underline{141,33 \text{ mm}}$$

Aufgabe 2:

$$V = a \cdot a \cdot h$$

$$2028 \text{ mm}^3 = a^2 \cdot 12 \text{ mm} \quad | : 12 \text{ mm}$$

$$169 \text{ mm}^2 = a^2 \quad | \sqrt{}$$

$$\underline{13 \text{ mm} = a}$$

$$d_1^2 = a^2 + b^2$$

$$d_1^2 = 169 \text{ mm}^2 + 169 \text{ mm}^2$$

$$d_1^2 = 338 \text{ mm}^2 \quad | \sqrt{}$$

$$|d_1| = \underline{18,38 \text{ mm}}$$

$$d_3^2 = c^2 + a^2$$

$$d_3^2 = 144 \text{ mm}^2 + 169 \text{ mm}^2$$

$$d_3^2 = 313 \text{ mm}^2 \quad | \sqrt{}$$

$$|d_3| = \underline{17,69 \text{ mm}}$$

$$d_2^2 = b^2 + c^2$$

$$d_2^2 = 169 \text{ mm}^2 + 144 \text{ mm}^2$$

$$d_2^2 = 313 \text{ mm}^2 \quad | \sqrt{}$$

$$|d_2| = \underline{17,69 \text{ mm}}$$

$$d^2 = a^2 + b^2 + c^2$$

$$d^2 = (13 \text{ mm})^2 + (13 \text{ mm})^2 + (12 \text{ mm})^2$$

$$d^2 = 169 \text{ mm}^2 + 169 \text{ mm}^2 + 144 \text{ mm}^2$$

$$d^2 = 482 \text{ mm}^2 \quad | \sqrt{}$$

$$|d| = \underline{21,95 \text{ mm}}$$