Lösungen Repetition MB3 LU14 (Pyramide)

1. $V = \dfrac{1}{3} \cdot s^2 \cdot h = \dfrac{1}{3} \cdot (12cm)^2 \cdot 20cm = \underline{\underline{960cm^3}}$

2. $h = \dfrac{3 \cdot V}{s^2} = \dfrac{3 \cdot 240cm^3}{(8cm)^2} = \underline{\underline{11{,}25cm}}$

3. $s = \sqrt{\dfrac{3 \cdot V}{h}} = \sqrt{\dfrac{3 \cdot 192cm^3}{16cm}} = \underline{\underline{6cm}}$

4. $\overline{MS} = \sqrt{\overline{EM}^2 + \overline{ES}^2} = \sqrt{1^2 + 3^2} = \underline{\underline{\sqrt{10}m}}$

    $M = 4 \cdot \dfrac{\overline{AB} \cdot \overline{MS}}{2} = 4 \cdot \dfrac{2m \cdot \sqrt{10}m}{2} = \underline{\underline{4 \cdot \sqrt{10}m^2}}$

5. $\overline{BS} = \sqrt{\overline{BM}^2 + \overline{MS}^2} = \sqrt{1^2 + \sqrt{10}^2} = \underline{\underline{\sqrt{11}m}}$

    $k = 4 \cdot \overline{AB} + 4 \cdot \overline{BS} = 4 \cdot 2m + 4 \cdot \sqrt{11}m = \underline{\underline{\left(8 + 4 \cdot \sqrt{11}\right)m}}$

6. $V = \dfrac{1}{3} \cdot \overline{AB}^2 \cdot \overline{ES} = \dfrac{1}{3} \cdot (2m)^2 \cdot 3m = \underline{\underline{4m^3}}$

    $4m^3 = \dfrac{1}{3} \cdot s^2 \cdot 4m \qquad \big| : 4m$

    $1m^2 = \dfrac{1}{3} \cdot s^2 \qquad\qquad \big| \cdot 3$

    $3m^2 = s^2 \qquad\qquad\quad \big| \sqrt{}$

    $\underline{\underline{\sqrt{3}m = s}} \qquad\qquad \rightarrow \qquad 2m - \sqrt{3}m \cong 0{,}27m = \underline{\underline{27cm}}$

7. $M = \dfrac{3m \cdot 1m}{2} + \dfrac{2m \cdot 1m}{2} + \dfrac{\sqrt{5}m \cdot 3m}{2} + \dfrac{\sqrt{10}m \cdot 2m}{2} = 1{,}5m^2 + 1m^2 + 1{,}5 \cdot \sqrt{5}m^2 + \sqrt{10}m^2$

    $= \underline{\underline{\left(2{,}5 + 1{,}5 \cdot \sqrt{5} + \sqrt{10}\right)m^2}}$

8. $k = 2 \cdot 3m + 2 \cdot 2m + 1m + \sqrt{5}m + \sqrt{10}m + \sqrt{14}m$

    $= \underline{\underline{\left(11 + \sqrt{5} + \sqrt{10} + \sqrt{14}\right)m}}$