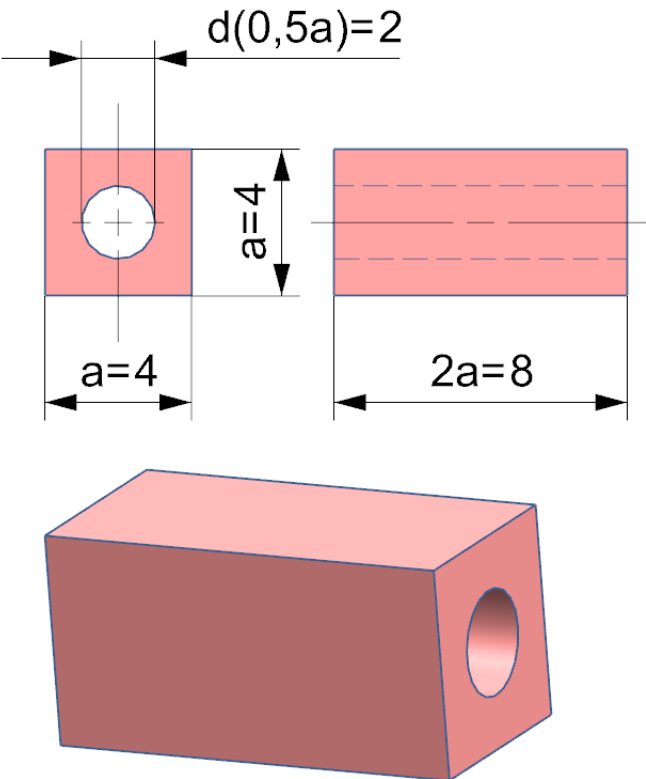


<https://www.gutefrage.net/frage/mathe-zylinder-und-koerper>

 <p>Technical drawing showing the front and side views of a rectangular block with a cylindrical hole. The front view shows a square cross-section with side length $a=4$ and a circular hole with diameter $d(0,5a)=2$. The side view shows a rectangular block with length $2a=8$ and height $a=4$. A 3D perspective view shows the block with the hole.</p>	<p>Aufgabe 21a Für Volumen V $V_1 = 1$ Quader $V_2 = 1$ Zylinder subtrahieren --- Quader Volumen V_1 $V_1 = a^2 \cdot 2a$ $V_1 = 4^2 \cdot 8$ $V_1 = 128 \text{ cm}^3$ --- Zylinder Volumen V_2 $V_2 = (0,5a)^2 \cdot (\pi / 4) \cdot 2a$ $V_2 = 2^2 \cdot (\pi / 4) \cdot 8$ $V_2 = 25,132741 \text{ cm}^3$ --- Gesamtkörper Volumen V $V = V_1 - V_2$ $V = 128 - 25,13$ $V = 102,867259 \text{ cm}^3$</p>	<p>Aufgabe 21b Oberfläche O besteht aus $A_1 = 2$ Quadrate 4×4 $A_2 = 4$ Rechtecke 4×8 $A_3 =$ Zylindermantelfläche $A_4 = 2$ Kreisflächen $0,5a=2$ subtrahieren --- $A_1 = a^2$ $A_1 = 4^2$ $A_1 = 16 \text{ cm}^2$ --- $A_2 = a \cdot 2a$ $A_2 = 4 \cdot 8$ $A_2 = 32 \text{ cm}^2$ --- $A_3 = 0,5a \cdot \pi \cdot 2a$ $A_3 = 2 \cdot \pi \cdot 8$ $A_3 = 50,265482 \text{ cm}^2$ --- $A_4 = 0,5^2 \cdot (\pi / 4)$ $A_4 = 2^2 \cdot (\pi / 4)$ $A_4 = 3,141593 \text{ cm}^2$ --- Gesamtoberfläche O $O = (2 \cdot A_1) + (4 \cdot A_2) + A_3 - (2 \cdot A_4)$ $O = (2 \cdot 16) + (4 \cdot 32) + 50,265482 - (2 \cdot 3,141593)$ $O = 203,982296 \text{ cm}^2$</p>
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