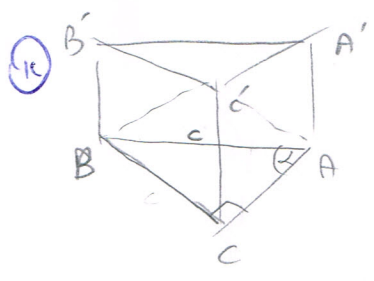


16
(250)



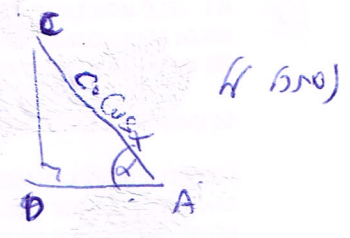
אם β הוא הזווית בין CD ל- AD אז $h = CD \cdot \sin \beta$
 $h = c \cdot \sin \alpha \cdot \sin \beta$
 $CD = \frac{h}{\sin \beta}$

$\cos \alpha = \frac{CA}{c} = \frac{CA}{c}$

ב- $\triangle ABC$ הזווית α היא בין BC ל- CA

$CA = c \cdot \cos \alpha$, $BC = c \cdot \sin \alpha$

$\sin \alpha = \frac{CD}{CA} = \frac{CD}{c \cdot \cos \alpha}$



$CD = c \cdot \cos \alpha \cdot \sin \alpha$

$\frac{h}{\sin \beta} = c \cdot \cos \alpha \cdot \sin \alpha$

CD היא הגובה של $\triangle ABC$

$h = c \cdot \cos \alpha \cdot \sin \alpha \cdot \sin \beta$

$V_{ABCA'B'C'} = \frac{BC \cdot CA}{2} \cdot CD = \frac{c \cdot \sin \alpha \cdot c \cdot \cos \alpha}{2} \cdot c \cdot \sin \alpha \cdot \sin \beta \cdot \cos \alpha = \frac{1}{2} c^3 \sin^2 \alpha \cos^2 \alpha \cdot \sin \beta$

② $\frac{1}{8} c^3 \sin \beta = \frac{1}{2} c^3 \sin^2 \alpha \cos^2 \alpha \cdot \sin \beta \Rightarrow \frac{1}{4} = \sin^2 \alpha \cos^2 \alpha$

$\frac{1}{4} = \sin^2 \alpha \cos^2 \alpha = \frac{\sin^2 2\alpha}{4}$

$1 = \sin^2 2\alpha$

$\sin 2\alpha = 1$

$2\alpha = 90$

$\alpha = 45$

$\sin 2\alpha = -1$

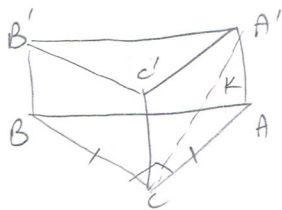
$2\alpha = -90$

$\alpha = -45$

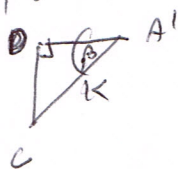
360°K את הפונקציה \sin !

הזווית α ב- $\triangle ABC$ היא 45° או 135°

17 (250) (k)

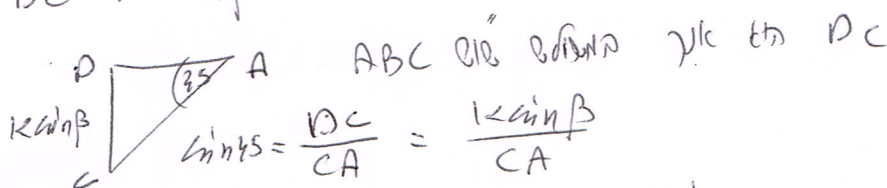


D → D' is the projection of D onto the plane ABC. DC is the hypotenuse of the right triangle ADC.



$$\sin \beta = \frac{DC}{CA'} = \frac{DC}{k}$$

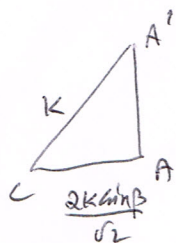
$$DC = k \sin \beta$$



$$\sin 45 = \frac{DC}{CA} = \frac{k \sin \beta}{CA}$$

$$CA = \frac{k \sin \beta}{\sin 45} = \frac{2k \sin \beta}{\sqrt{2}}$$

Since the triangle is right-angled, $CB = CA = \frac{2k \sin \beta}{\sqrt{2}}$



$$AA' = \sqrt{CA'^2 - AA'^2} = \sqrt{k^2 + \frac{4k^2 \sin^2 \beta}{2}} = k \sqrt{1 + 2 \sin^2 \beta}$$

$$V_{ABCA'B'C'} = \frac{AC \cdot BC}{2} \cdot AA' = \frac{\left(\frac{2k \sin \beta}{\sqrt{2}}\right)^2}{2} \cdot k \sqrt{1 + 2 \sin^2 \beta} = k^3 \sin^2 \beta \sqrt{1 + 2 \sin^2 \beta}$$

$$(1 + 2 \sin^2 \beta = \cos 2\beta = \cos^2 \beta - \sin^2 \beta)$$

(Note: The original text has some scribbles here, possibly indicating a correction or a note about the identity used.)

$$\sin \beta = \sqrt{1 - \cos^2 \beta} = \sqrt{1 - 0.8^2} = \sqrt{0.18}$$

$$V = k^3 \cdot 0.18 \sqrt{1 + 2 \cdot 0.18} = k^3 \cdot 0.18 \cdot 0.8 = 0.144 k^3$$