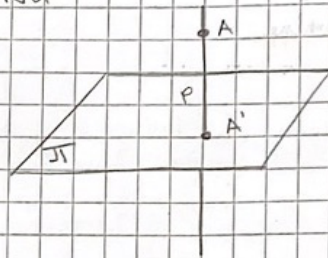


Udaljenost točke od ravnine

Projekcija točke na ravninu

Prenosimo točku u prostor pomoću okomitosti → ORTOGONALNA PROJEKCIJA NA RAVNINU

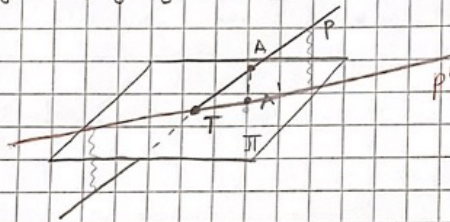


→ točka A' je ortogonalna projekcija točke A na ravninu π

Projekcija pravca na ravninu

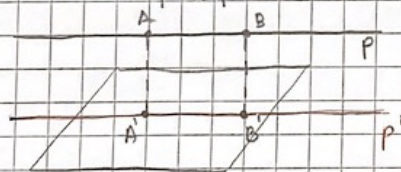
1) Pravac p leži na ravnini → podudara se sa svojom projekcijom
 → $p = p'$

2) Pravac p i ravnina π sijeku se u točki T → odredimo još jednu točku $A \in p$ i njezinu projekciju na ravninu A' spojimo A' i $T = p'$



3) Pravac p je paralelan s ravninom π → odredimo točke $A, B \in p$ i njihove projekcije na ravninu $A', B' \in p'$

→ $p \parallel p'$

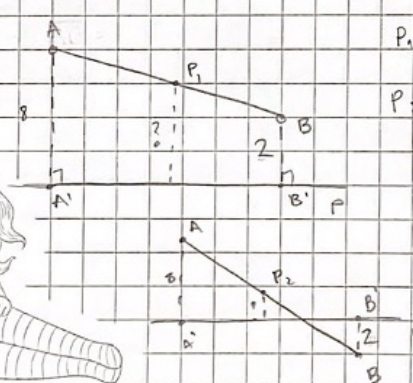


4) Pravac p okomit je na ravninu π → projekcija pravca je u točki T u kojoj siječe ravninu

Udaljenost točke od ravnine

→ jednaka je udaljenosti točke od njezine ortogonalne projekcije na ravninu

5)

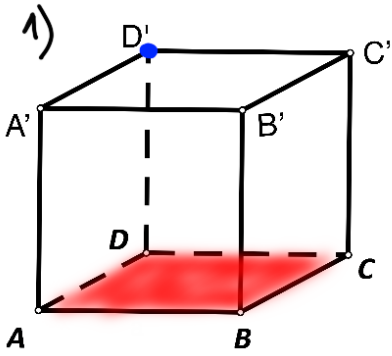


$$P_1 = \frac{8+2}{2} = 5 \text{ cm}$$

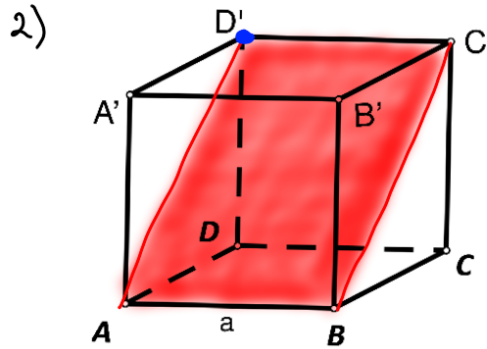
$$P_2 = \frac{8-2}{2} = 3 \text{ cm}$$



11.

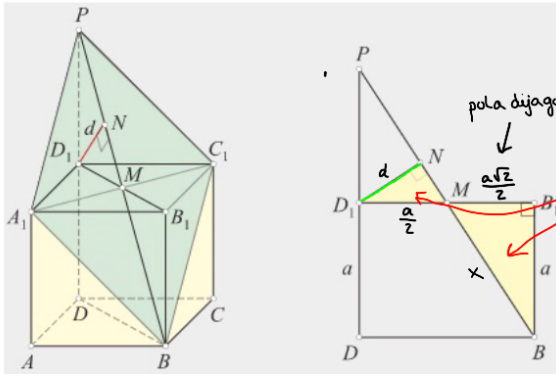


UDALJENOST : a



UDALJENOST : $0 \rightarrow$ točka pripada ravnini

3)



$$x = \sqrt{a^2 + \left(\frac{a\sqrt{2}}{2}\right)^2}$$

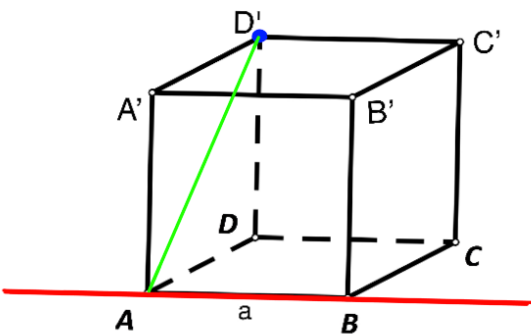
$$k = \frac{a}{\frac{a}{2}} = \frac{a\sqrt{3}}{2}$$

$$x = \sqrt{a^2 + \frac{a^2}{2}}$$

$$k = \frac{\sqrt{3}}{3}$$

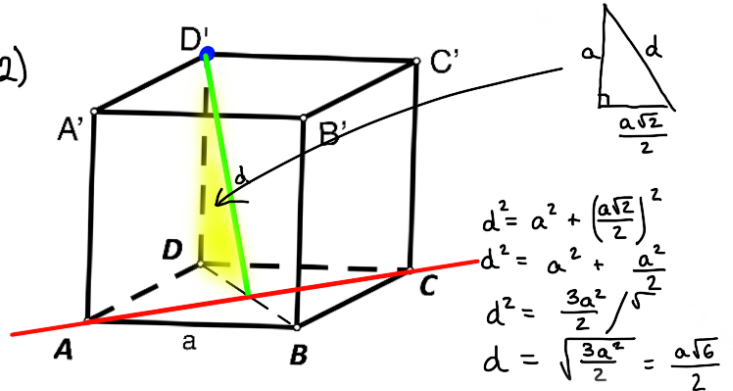
$$x = \frac{a\sqrt{3}}{2}$$

$$d = \frac{a\sqrt{3}}{3}$$



UDALJENOST : $a\sqrt{2}$

2)



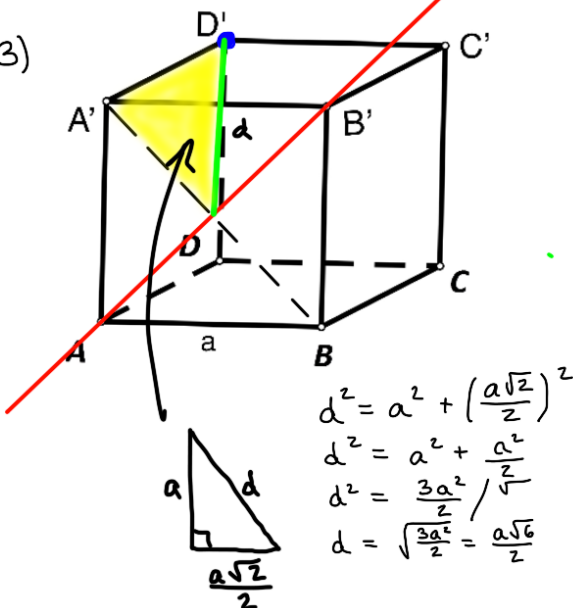
$$d^2 = a^2 + \left(\frac{a\sqrt{2}}{2}\right)^2$$

$$d^2 = a^2 + \frac{a^2}{2}$$

$$d^2 = \frac{3a^2}{2} / \sqrt{2}$$

$$d = \sqrt{\frac{3a^2}{2}} = \frac{a\sqrt{6}}{2}$$

3)



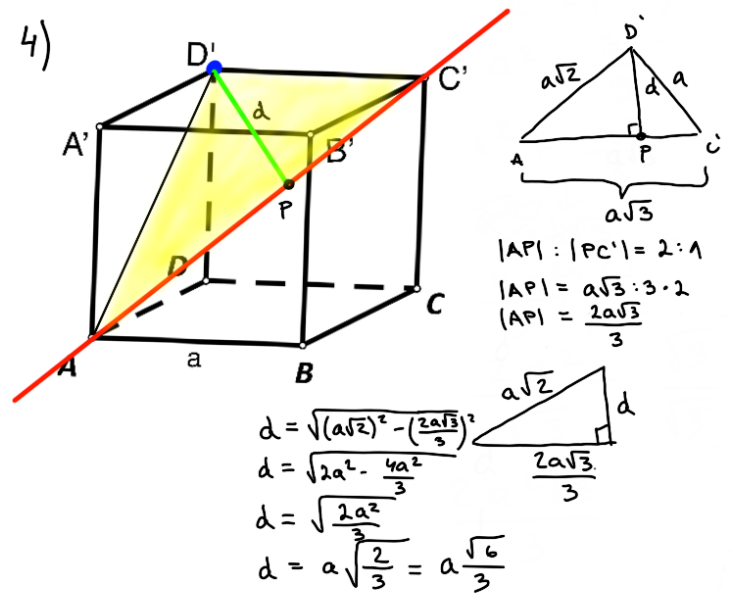
$$d^2 = a^2 + \left(\frac{a\sqrt{2}}{2}\right)^2$$

$$d^2 = a^2 + \frac{a^2}{2}$$

$$d^2 = \frac{3a^2}{2} / \sqrt{2}$$

$$d = \sqrt{\frac{3a^2}{2}} = \frac{a\sqrt{6}}{2}$$

4)



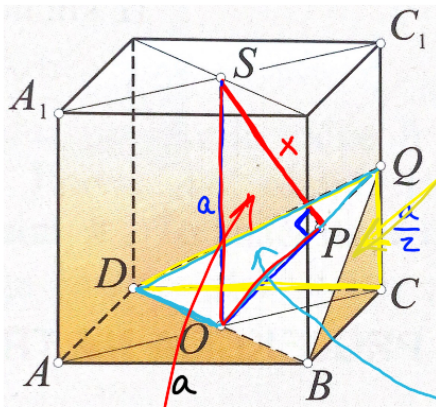
$$d = \sqrt{(a\sqrt{2})^2 - \left(\frac{2a\sqrt{3}}{3}\right)^2}$$

$$d = \sqrt{2a^2 - \frac{4a^2}{3}}$$

$$d = \sqrt{\frac{2a^2}{3}}$$

$$d = a\sqrt{\frac{2}{3}} = \frac{a\sqrt{6}}{3}$$

14.



$$b = \sqrt{a^2 + \left(\frac{a}{2}\right)^2}$$

$$b = \sqrt{a^2 + \frac{a^2}{4}}$$

$$b = \sqrt{\frac{5a^2}{4}}$$

$$b = \frac{a\sqrt{5}}{2}$$



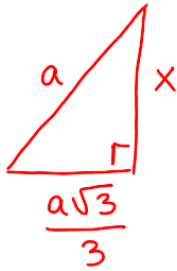
$$c = \sqrt{\left(\frac{a\sqrt{5}}{2}\right)^2 - \left(\frac{a\sqrt{2}}{2}\right)^2}$$

$$c = \frac{a\sqrt{3}}{2}$$

$$|OP| : |PQ| = 2 : 1$$

$$|OQ| = \frac{a\sqrt{3}}{2}$$

$$|OP| = \frac{a\sqrt{3}}{3}$$

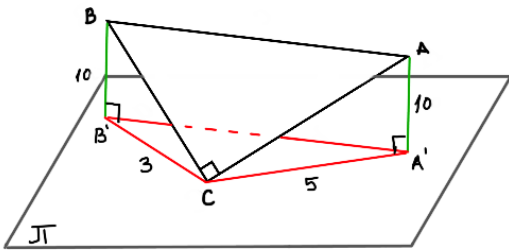


$$x = \sqrt{a^2 - \left(\frac{a\sqrt{3}}{3}\right)^2}$$

$$x = \sqrt{a^2 - \frac{3a^2}{9}}$$

$$x = \sqrt{\frac{2a^2}{3}} = \frac{\sqrt{2}a}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{a\sqrt{6}}{3}$$

19.



$$|AB| = ?$$

$$|AB| = \sqrt{|CA|^2 + |BC|^2}$$

$$|CA|^2 = |AA'|^2 + |CA'|^2$$

$$|CA|^2 = 125 \text{ cm}$$

$$|BC|^2 = |BB'|^2 + |B'C|^2$$

$$|BC|^2 = 109 \text{ cm}$$

$$|AB| = \sqrt{125 + 109}$$

$$|AB| = \sqrt{234} = 3\sqrt{26} \text{ cm}$$