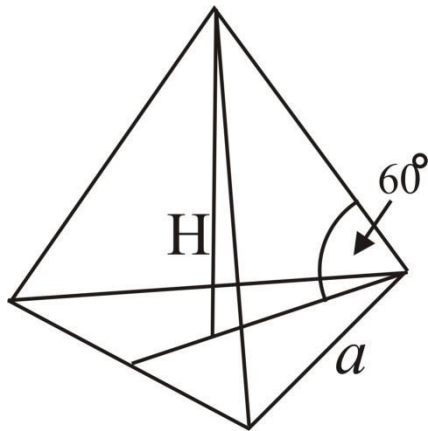


1. У следећим примерима израчунати запремину правилних пирамида ако је висина пирамиде 6cm.

a)



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

$$r_o = \frac{x}{2}$$

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

$$6 = \frac{x\sqrt{3}}{2}$$

$$r_o = \frac{4\sqrt{3}}{2}$$

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

$$x\sqrt{3} = 12$$

$$r_o = 2\sqrt{3}cm$$

$$a\sqrt{3} = 6\sqrt{3}$$

$$x = \frac{12}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

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

$$x = \frac{12\sqrt{3}}{3}$$

$$a = 6cm$$

$$x = 4\sqrt{3}cm$$

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

$$B = \frac{6^2\sqrt{3}}{4}$$

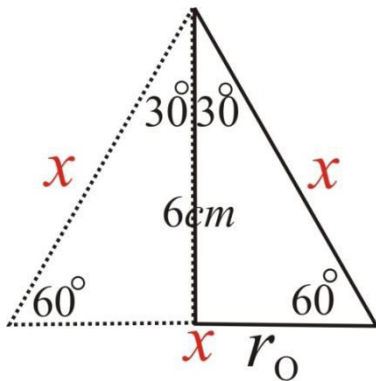
$$V = \frac{1}{3} \cdot B \cdot H$$

$$B = \frac{36\sqrt{3}}{4}$$

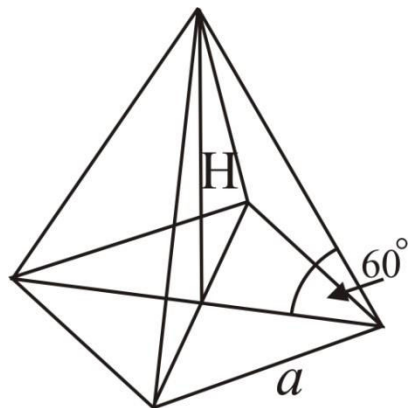
$$V = \frac{1}{3} \cdot 36\sqrt{3} \cdot 6$$

$$B = 9\sqrt{3}cm^2$$

$$V = 72\sqrt{3}cm^3$$



b)



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

$$r_o = \frac{x}{2}$$

$$r_o = \frac{d}{2}$$

$$d = a\sqrt{2}$$

$$6 = \frac{x\sqrt{3}}{2}$$

$$r_o = \frac{4\sqrt{3}}{2}$$

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

$$4\sqrt{3} = a\sqrt{2}$$

$$x\sqrt{3} = 12$$

$$r_o = 2\sqrt{3}cm$$

$$d = 2\sqrt{3} \cdot 2$$

$$a = \frac{4\sqrt{3}}{\sqrt{2}}$$

$$x = \frac{12}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$d = 4\sqrt{3}cm$$

$$a = \frac{4\sqrt{3}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$x = \frac{12\sqrt{3}}{3}$$

$$a = \frac{4\sqrt{6}}{2}$$

$$x = 4\sqrt{3}cm$$

$$B = a^2$$

$$V = \frac{1}{3} \cdot B \cdot H$$

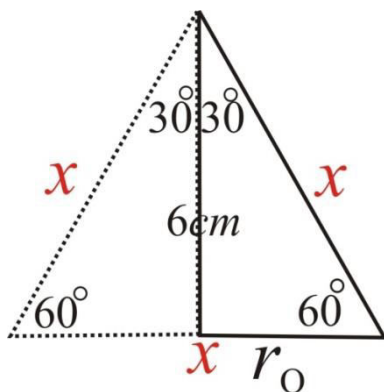
$$B = (2\sqrt{6})^2$$

$$V = \frac{1}{3} \cdot 24 \cdot 6$$

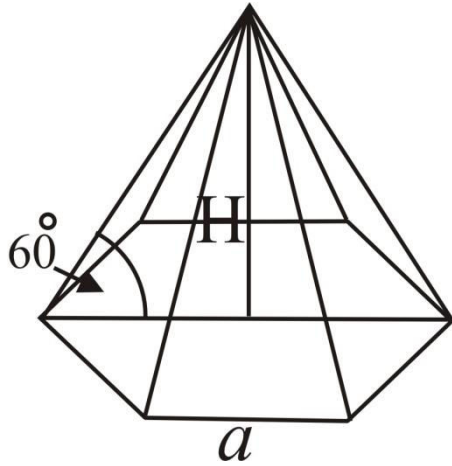
$$B = 24$$

$$B = 24cm^2$$

$$V = 48cm^3$$



B)



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

$$6 = \frac{x\sqrt{3}}{2}$$

$$x\sqrt{3} = 12$$

$$x = \frac{12}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$x = \frac{12\sqrt{3}}{3}$$

$$x = 4\sqrt{3}\text{cm}$$

$$r_o = \frac{x}{2}$$

$$r_o = \frac{4\sqrt{3}}{2}$$

$$r_o = 2\sqrt{3}\text{cm}$$

$$r_o = a$$

$$a = 2\sqrt{3}\text{cm}$$

$$B = 6 \cdot \frac{a^2\sqrt{3}}{4}$$

$$B = 3 \cdot \frac{(2\sqrt{3})^2\sqrt{3}}{2}$$

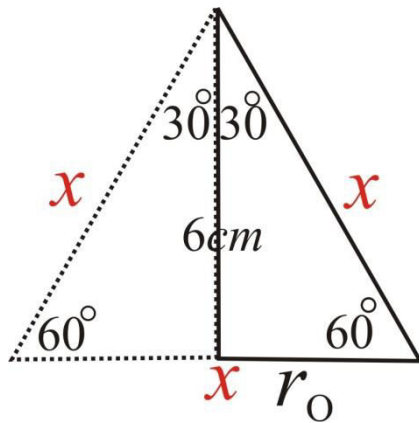
$$B = 3 \cdot \frac{4 \cdot 3 \cdot \sqrt{3}}{2}$$

$$B = 18\sqrt{3}\text{cm}^2$$

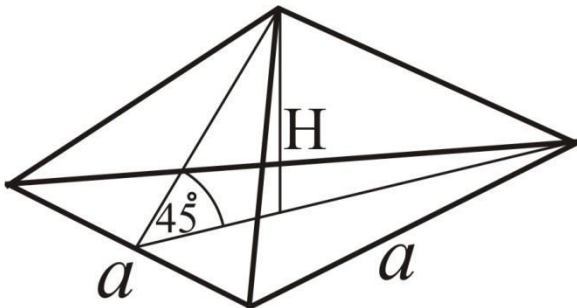
$$V = \frac{1}{3} \cdot B \cdot H$$

$$V = \frac{1}{3} \cdot 18\sqrt{3} \cdot 6$$

$$V = 36\sqrt{3}\text{cm}^3$$



Г)



$$H = r_U = 6\text{cm}$$

$$r_U = \frac{a\sqrt{3}}{6}$$

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

$$a\sqrt{3} = 6 \cdot 6$$

$$a\sqrt{3} = 36$$

$$a = \frac{36}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$a = \frac{36\sqrt{3}}{3}$$

$$a = 12\sqrt{3}\text{cm}$$

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

$$B = \frac{(12\sqrt{3})^2\sqrt{3}}{4}$$

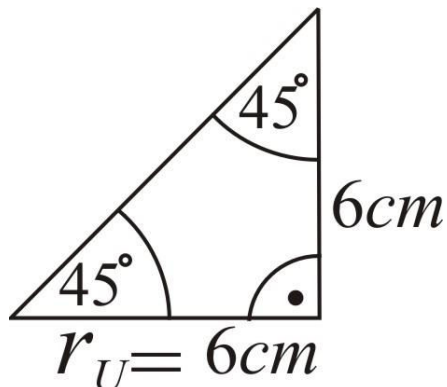
$$B = \frac{144 \cdot 3\sqrt{3}}{4}$$

$$B = 108\sqrt{3}\text{cm}^2$$

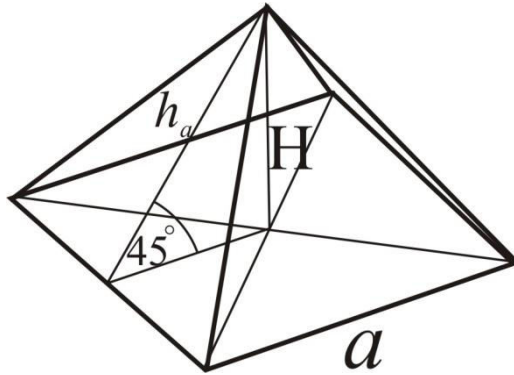
$$V = \frac{1}{3} \cdot B \cdot H$$

$$V = \frac{1}{3} \cdot 108\sqrt{3} \cdot 6$$

$$V = 216\sqrt{3}\text{cm}^3$$



д)



$$H = r_U = 6\text{cm}$$

$$r_U = \frac{a}{2}$$

$$6 = \frac{a}{2}$$

$$a = 6 \cdot 2$$

$$a = 12\text{cm}$$

$$B = a^2$$

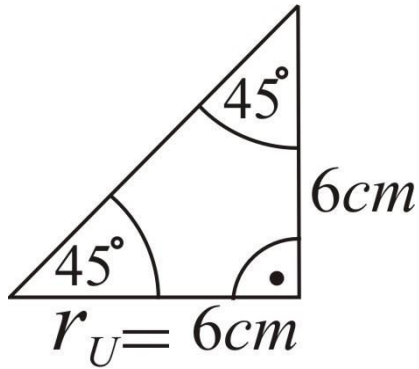
$$B = 12^2$$

$$B = 144\text{cm}^2$$

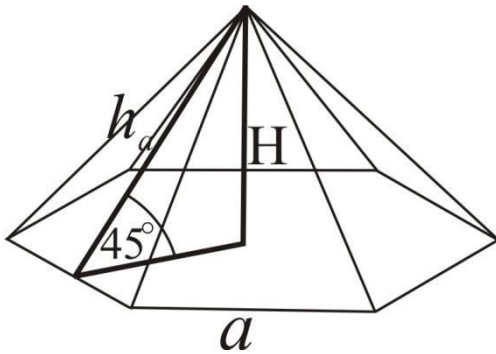
$$V = \frac{1}{3} \cdot B \cdot H$$

$$V = \frac{1}{3} \cdot 144 \cdot 6$$

$$V = 288\text{cm}^3$$



h)



$$H = r_U = 6\text{cm}$$

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

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

$$a\sqrt{3} = 12$$

$$a = \frac{12}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$a = \frac{12\sqrt{3}}{3}$$

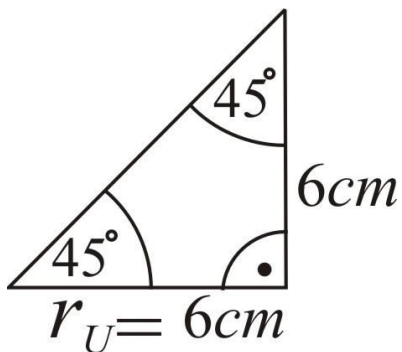
$$a = 4\sqrt{3}\text{cm}$$

$$B = 6 \cdot \frac{a^2\sqrt{3}}{4}$$

$$B = 3 \cdot \frac{(4\sqrt{3})^2 \sqrt{3}}{2}$$

$$B = 3 \cdot \frac{16 \cdot 3 \cdot \sqrt{3}}{2}$$

$$B = 72\sqrt{3}\text{cm}^2$$

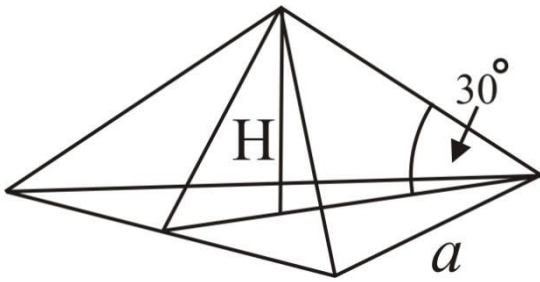


$$V = \frac{1}{3} \cdot B \cdot H$$

$$V = \frac{1}{3} \cdot 72\sqrt{3} \cdot 6$$

$$V = 144\sqrt{3}\text{cm}^3$$

e)



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

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

$$a\sqrt{3} = 6\sqrt{3} \cdot 3$$

$$a\sqrt{3} = 18\sqrt{3}$$

$$a = \frac{18\sqrt{3}}{\sqrt{3}}$$

$$a = 18\text{cm}$$

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

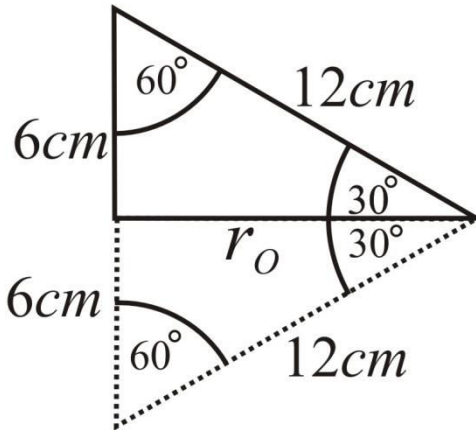
$$B = \frac{18^2\sqrt{3}}{4}$$

$$B = \frac{324\sqrt{3}}{4}$$

$$B = 81\sqrt{3}\text{cm}^2$$

$$r_o = \frac{12\sqrt{3}}{3}$$

$$r_o = 6\sqrt{3}\text{cm}$$

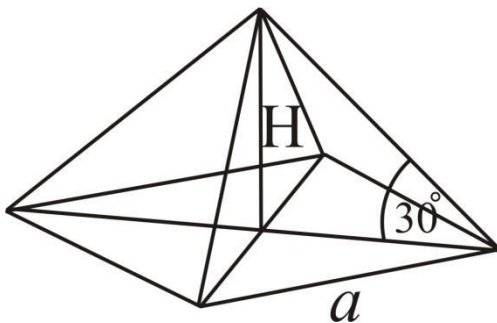


$$V = \frac{1}{3} \cdot B \cdot H$$

$$V = \frac{1}{3} \cdot 81\sqrt{3} \cdot 6$$

$$V = 162\sqrt{3}\text{cm}^3$$

ж)



$$r_o = \frac{d}{2}$$

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

$$d = 6\sqrt{3} \cdot 2$$

$$d = 12\sqrt{3}\text{cm}$$

$$d = a\sqrt{2}$$

$$12\sqrt{3} = a\sqrt{2}$$

$$a = \frac{12\sqrt{3}}{\sqrt{2}}$$

$$a = \frac{12\sqrt{3}}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}}$$

$$a = \frac{12\sqrt{6}}{2}$$

$$a = 6\sqrt{6}\text{cm}$$

$$r_o = \frac{12\sqrt{3}}{3}$$

$$r_o = 6\sqrt{3}\text{cm}$$

$$B = a^2$$

$$B = (6\sqrt{6})^2$$

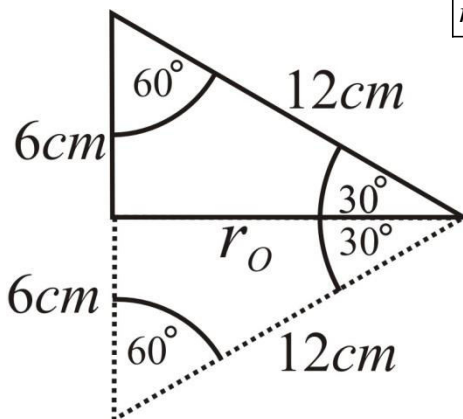
$$B = 36 \cdot 6$$

$$B = 216\text{cm}^2$$

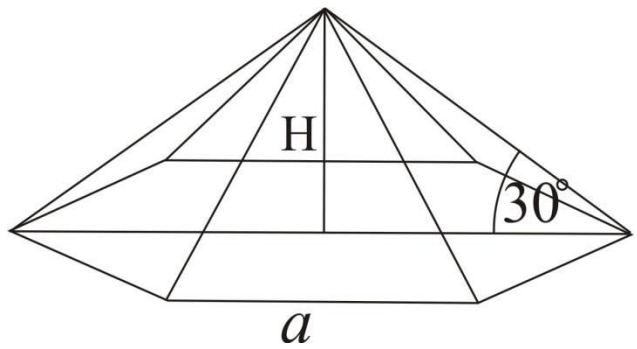
$$V = \frac{1}{3} \cdot B \cdot H$$

$$V = \frac{1}{3} \cdot 216\sqrt{5} \cdot 6$$

$$V = 432\sqrt{3}\text{cm}^3$$



3)

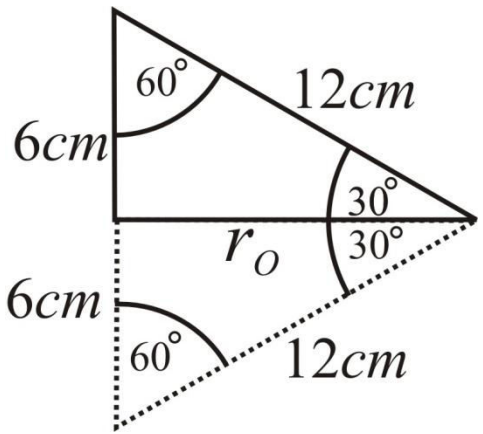


$$B = 6 \cdot \frac{a^2 \sqrt{3}}{4}$$

$$B = 3 \cdot \frac{(6\sqrt{3})^2 \sqrt{3}}{2}$$

$$B = 3 \cdot \frac{36 \cdot 3 \cdot \sqrt{3}}{2}$$

$$B = 108\sqrt{3} \text{ cm}^2$$



$$r_o = \frac{12\sqrt{3}}{3}$$

$$r_o = 6\sqrt{3} \text{ cm}$$

$$r_o = a$$

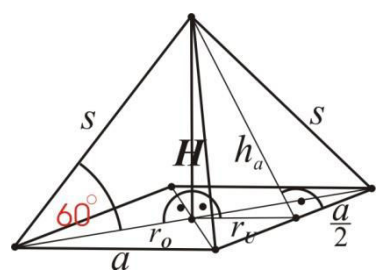
$$a = 6\sqrt{3} \text{ cm}$$

$$V = \frac{1}{3} \cdot B \cdot H$$

$$V = \frac{1}{3} \cdot 108\sqrt{3} \cdot 6$$

$$V = 216\sqrt{3} \text{ cm}^3$$

2. Израчунати запремину pravilne četvorostrane piramide ako je osnovna ivica 6 cm, a bočna ivica zaklapa sa ravni ugaod od 60°.



$$d = 6\sqrt{2}$$

$$d = 6\sqrt{2} \text{ cm}$$

$$B = a^2$$

$$B = 6^2$$

$$B = 36 \text{ cm}^2$$

$$r_o = \frac{d}{2}$$

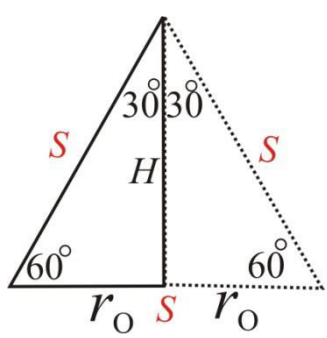
$$r_o = \frac{6\sqrt{3}}{2}$$

$$r_o = 3\sqrt{3} \text{ cm}$$

$$V = \frac{1}{3} \cdot B \cdot H$$

$$V = \frac{1}{3} \cdot 36 \cdot 3\sqrt{6}$$

$$V = 36\sqrt{6} \text{ cm}^3$$

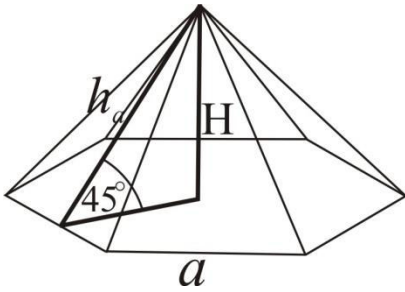


$$H = \frac{s\sqrt{3}}{2}$$

$$H = \frac{6^3 \sqrt{2} \sqrt{3}}{2^1}$$

$$H = 3\sqrt{6} \text{ cm}$$

3. Израчунати запремину pravilne šestostране piramide ako je osnovna ivica 10 cm , a ugaо између бочне стране и равни основе 45° .



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

$$r_U = \frac{10\sqrt{3}}{2}$$

$$\boxed{r_U = 5\sqrt{3}\text{cm}}$$

$$B = 6 \cdot \frac{a^2\sqrt{3}}{4}$$

$$B = 3 \cdot \frac{10^2\sqrt{3}}{2}$$

$$B = 3 \cdot \frac{100 \cdot \sqrt{3}}{2}$$

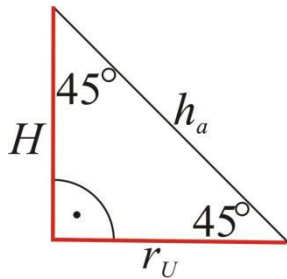
$$\boxed{B = 150\sqrt{3}\text{cm}^2}$$

$$V = \frac{1}{3} \cdot B \cdot H$$

$$V = \frac{1}{3} \cdot 150\sqrt{3} \cdot 5\sqrt{3}$$

$$V = 250 \cdot 3$$

$$\boxed{V = 750\text{cm}^3}$$



$$H = r_U$$

$$\boxed{H = 5\sqrt{3}\text{cm}}$$