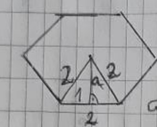
Зад 3 правилна призма

$n=6$
$b=2cm$
$h=l=7cm$
$S, S_1, V=?$



$a^2=2^2-1^2$
$a=\sqrt{3}$

$S=P \cdot h$
$S=nb \cdot h$
$S=6 \cdot 2 \cdot 7$
$S=84\ cm^2$

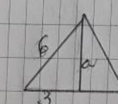
$S_1=S+2B$
$B=\frac{P \cdot a}{2}$
$B=\frac{6 \cdot 2 \cdot \sqrt{3}}{2}$
$B=6\sqrt{3}$
$S_1=84+12\sqrt{3}\ cm^2$

$V=B \cdot h$
$V=6\sqrt{3} \cdot 7 = 42\sqrt{3}\ cm^3$

Зад 4 правилна 3-на призма

$n=3$
$S=108\ cm^2$
$V=?$
$(b=h)$

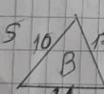
$S=P \cdot h$
$108=3 \cdot b \cdot b$
$b^2=36$
$b=6cm$
$h=6cm$



$a^2=6^2-3^2=27$
$a=3\sqrt{3}cm$
$B=\frac{6 \cdot 3\sqrt{3}}{2}=9\sqrt{3}cm^2$

$V=B \cdot h=9\sqrt{3} \cdot 6$
$V=54\sqrt{3}\ cm^3$

Зад 5



$V=1512cm^3$
$h=?$
$S_1=?$

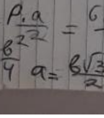
$B=\sqrt{p(p-a)(p-b)(p-c)}$
$p=\frac{10+17+21}{2}=2$
$B=\sqrt{24(24-10)(24-17)(24-21)}$
$B=\sqrt{24 \cdot 14 \cdot 7 \cdot 3}=\sqrt{3 \cdot 8 \cdot 2 \cdot 7 \cdot 7 \cdot 3}$
$B=3 \cdot 7 \cdot 4=84cm^2$

$V=B \cdot h$
$1512=84 \cdot h$
$h=1512:84=18cm$

$S_1=S+2B$
$S=P \cdot h=48 \cdot 18=864cm^2$
$S_1=864+2 \cdot 84=1032cm^2$

Зад 7

$n=6$
b, h
S_1 и $V=?$

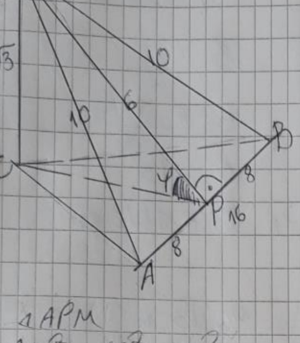


$a^2=b^2-\frac{b^2}{4}$
$a^2=\frac{3b^2}{4}$
$a=\frac{b\sqrt{3}}{2}$

$S=P \cdot h$
$S=6bh\ cm^2$
$B=\frac{P \cdot a}{2}=\frac{6 \cdot b \cdot b\sqrt{3}}{2 \cdot 2}=\frac{3\sqrt{3}b^2}{2}$

$S_1=6bh+3\sqrt{3}b$
$V=B \cdot h$
$V=\frac{3\sqrt{3}b^2 \cdot h}{2}cm^3$

Зад 5



$CM \perp (ABC)$

$CM = 3\sqrt{3}$ cm

$AM = BM = 10$ cm

$AB = 16$ cm

$\measuredangle (ABM) \cap (ABC) = \varphi = ?$

1) $\triangle APM$

$AM^2 - AP^2 = MP^2$

$10^2 - 8^2 = MP^2$

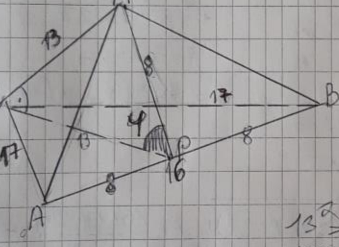
$MP = \sqrt{36} = 6$ cm

2) $\triangle CPM$

$\sin\varphi = \frac{CM}{MP} = \frac{3\sqrt{3}}{6} = \frac{\sqrt{3}}{2}$

$\varphi = 60^\circ$

Зад 6



$AC = BC = 17$ cm

$AB = 16$ cm

$AM = BM$

$\measuredangle AMB = 90^\circ$

$CM = 13$

$\measuredangle (ABM) \cap (ABC) = \varphi = ?$

cos T $\triangle CPM$

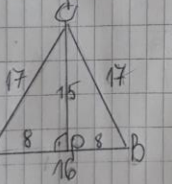
$13^2 = 15^2 + 8^2 - 2 \cdot 15 \cdot 8 \cdot \cos\varphi$

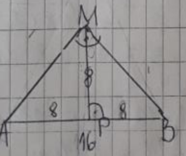
$169 = 225 + 64 - 240\cos\varphi$

$\cos\varphi = \frac{289 - 169}{240} = \frac{120}{240}$

$\cos\varphi = \frac{1}{2}$

$\varphi = 60^\circ$





$CP^2 = 17^2 - 8^2$

$CP = \sqrt{225}$

$CP = 15$ cm

$AM^2 + BM^2 = 16^2$

$2AM^2 = 256$

$AM^2 = 128$

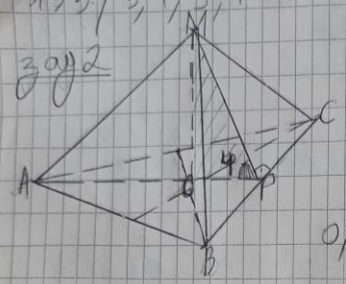
$BM = AM = 8\sqrt{2}$ cm

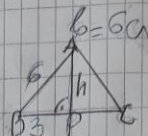
$MP = \frac{AB}{2} = \frac{16}{2} = 8$ cm

149/ 2, 3, 5, 6

153/ 3, 4, 5, 7 в

Зад 2





$AP^2 = AB^2 - BP^2$

$h^2 = 6^2 - 3^2 = 27$

$h = 3\sqrt{3}$ см

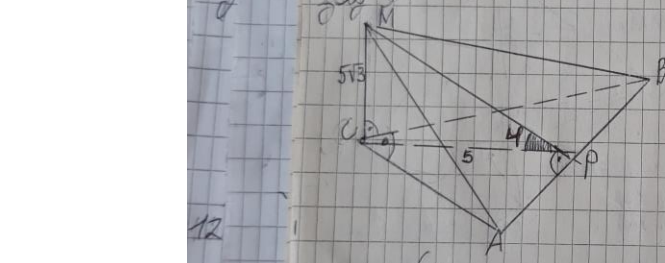
$OP = \frac{1}{3}h = \frac{3\sqrt{3}}{3} = \sqrt{3}$ см

$MP = h = 3\sqrt{3}$ см

$\triangle OPM$

$\cos \angle OPM = \frac{OP}{MP} = \frac{\sqrt{3}}{3\sqrt{3}} = \frac{1}{3}$ $\cos\varphi = \frac{1}{3}$

Зад 3



$AB = 10$ см

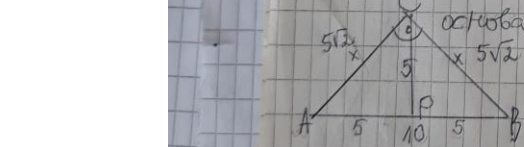
$AC = BC$

$MC \perp (ABC)$

$MC = 5\sqrt{3}$

а) $\triangle CPM$ правоъг

$\operatorname{tg}\varphi = \frac{5\sqrt{3}}{5} = \sqrt{3}$ $\varphi = 60°$



$CP^2 = AC^2 - AP^2$

$CP^2 = (5\sqrt{2})^2 - 5^2$

$CP^2 = 50 - 25$

$CP = 5$ см

$\neq (ABM) \text{ и } (ABC)$

б) $CM \perp (ABC)$

ACM минава през CM

$\Rightarrow \sphericalangle(ACM, ABC) = 90°$

в) $CM \perp (ABC)$

BCM минава през CM

$\Rightarrow \sphericalangle(BCM, ABC) = 90°$

$x^2 + x^2 = 10^2$

$2x^2 = 100$

$x^2 = 50$

$x = 5\sqrt{2}$

$AC = BC = 5\sqrt{2}$