ГЕОМЕТРИЧЕСКИЕ УВЛЕЧЕНИЯ НАПОЛЕОНА

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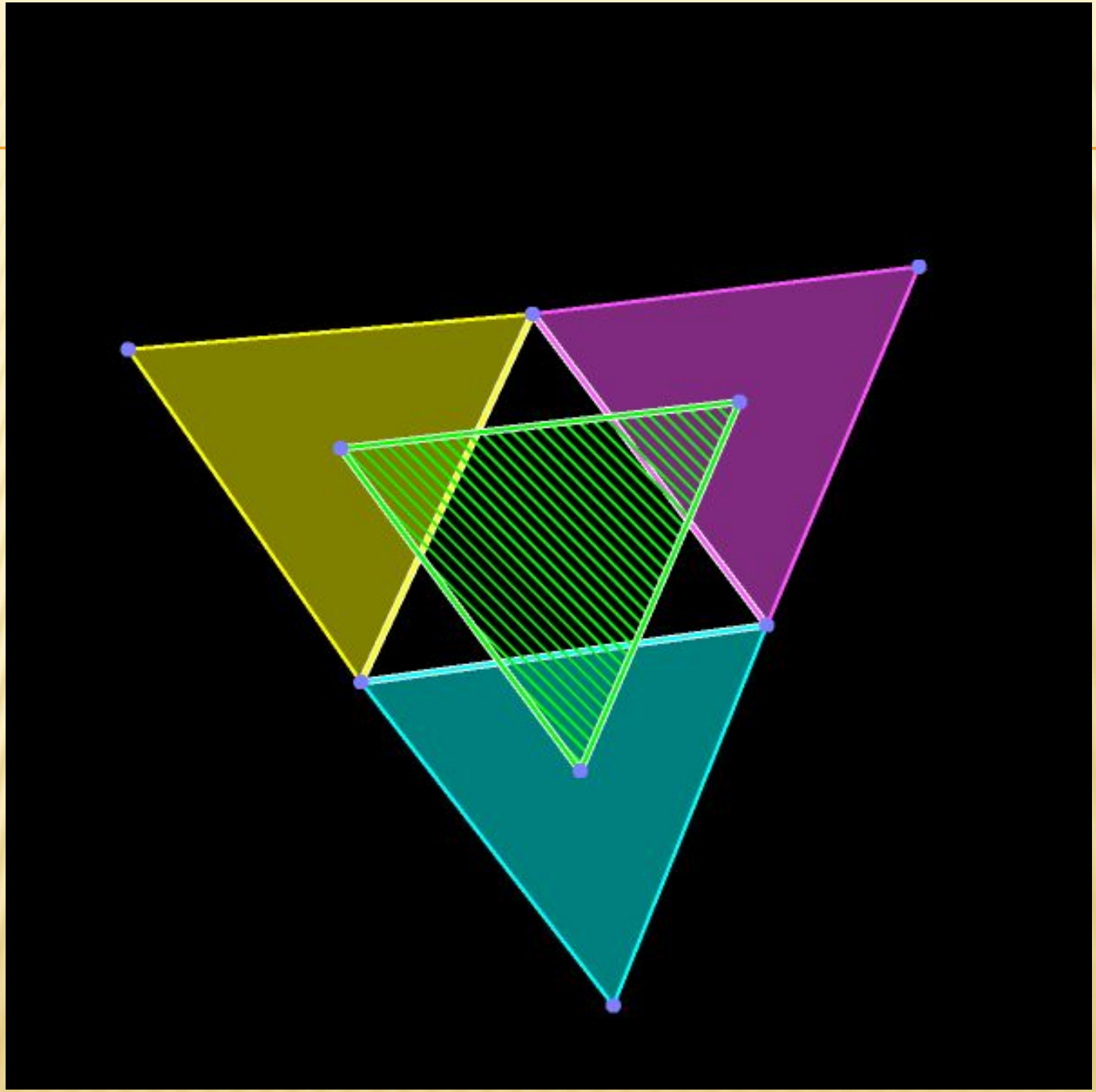
Дигорский Дом детского творчества

НАПОЛЕОН БОНАПАРТ (1769-1821)



ТЕОРЕМА НАПОЛЕОНА

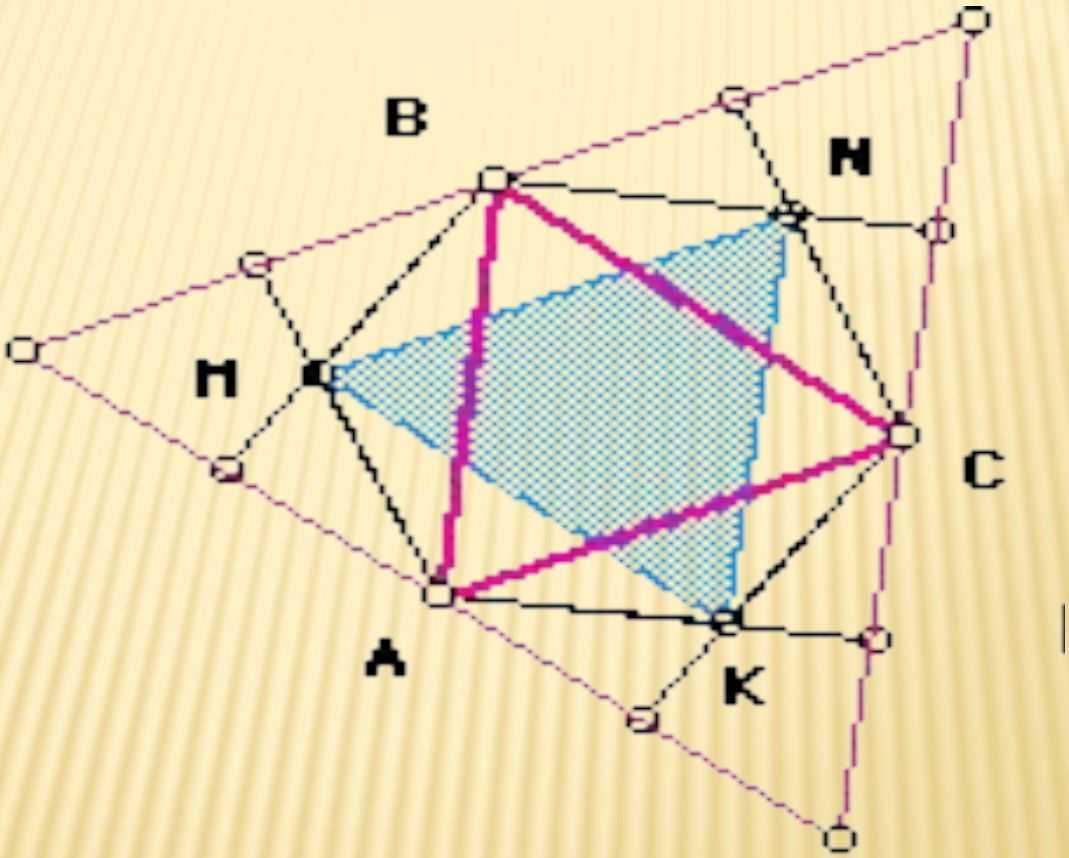
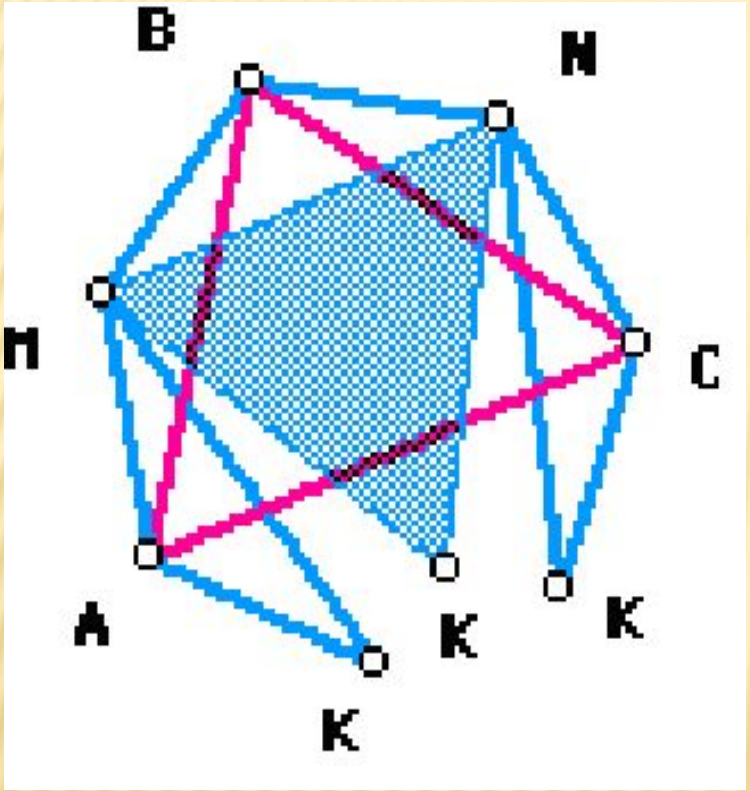


Рис. 1



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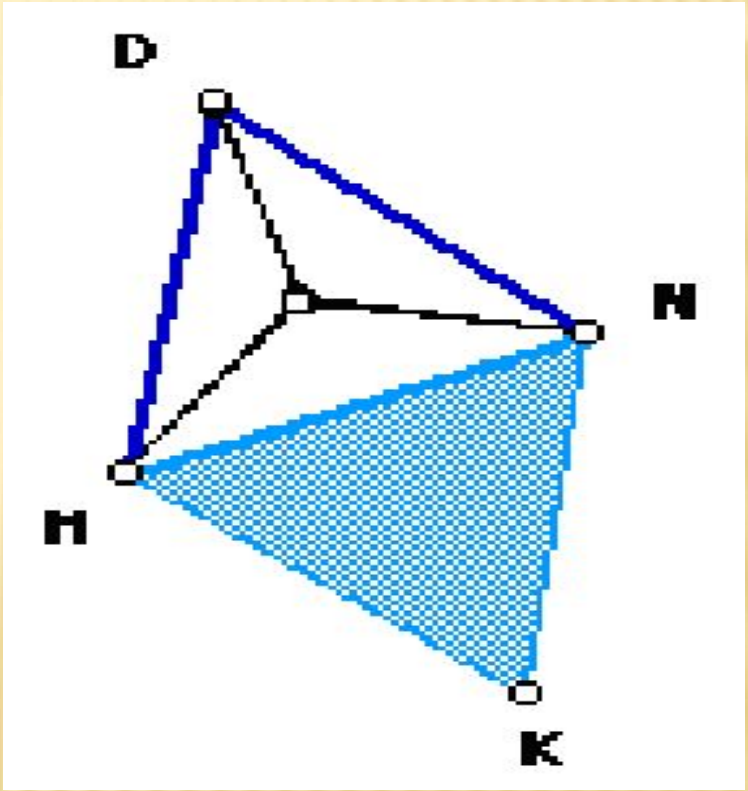

Рис. 3

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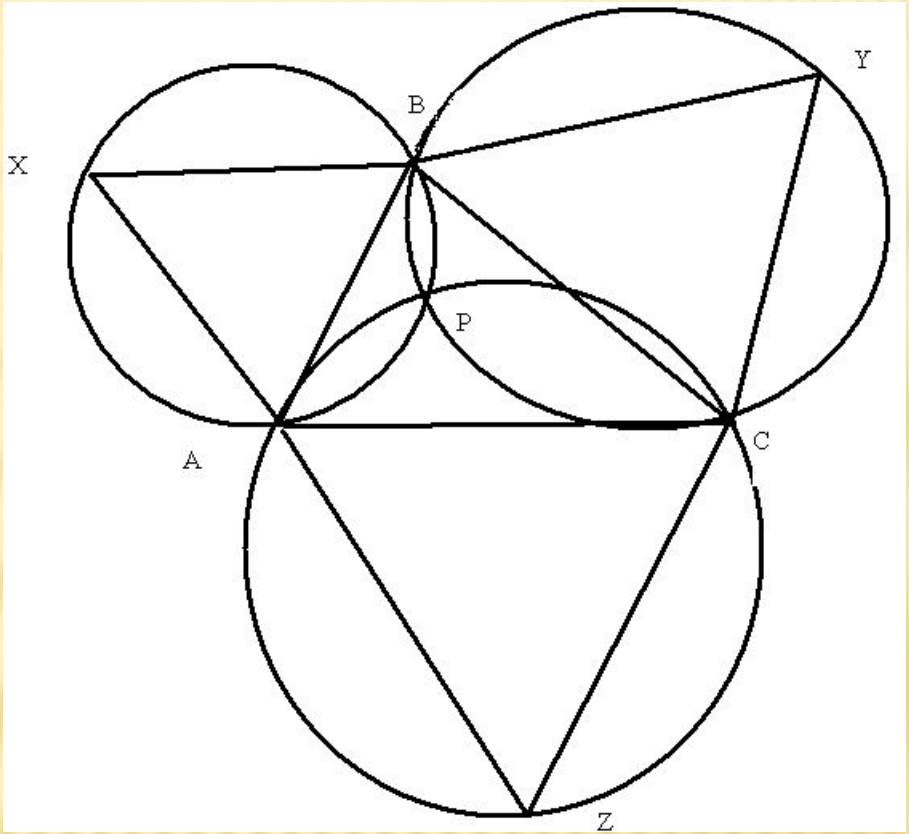

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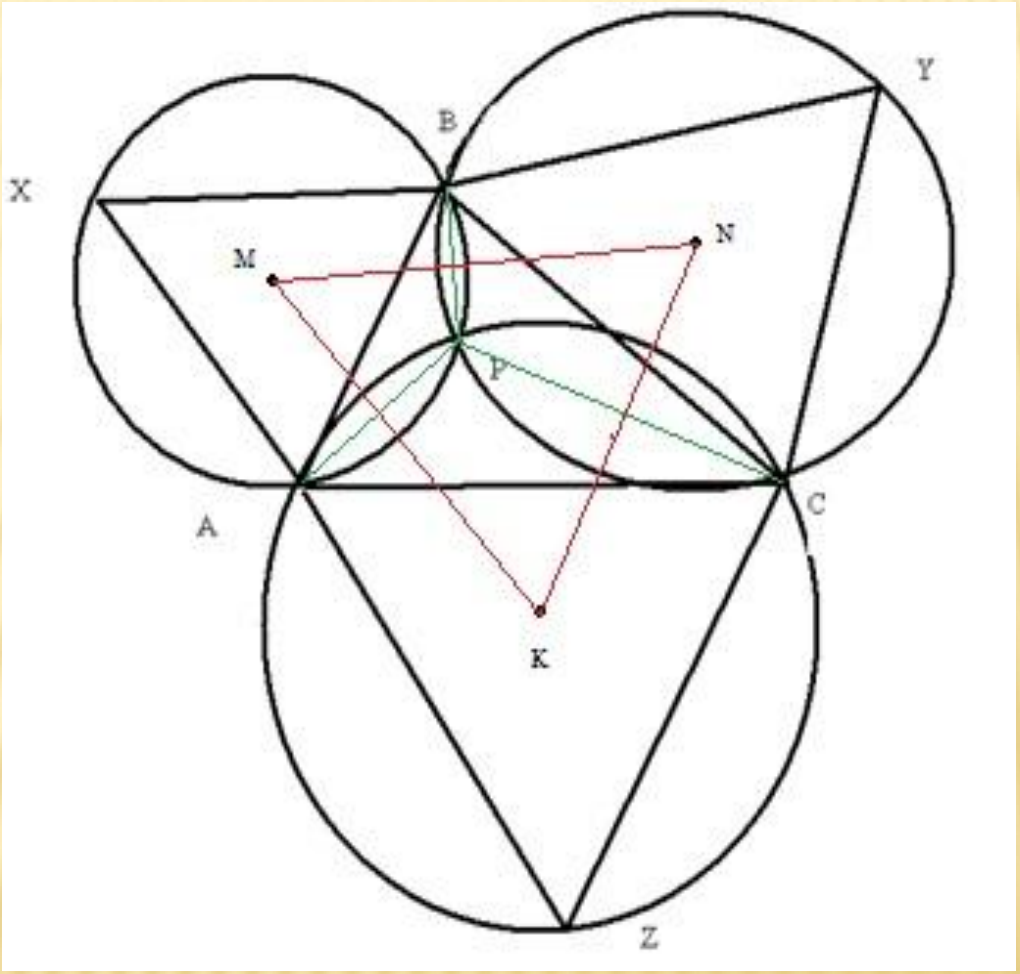

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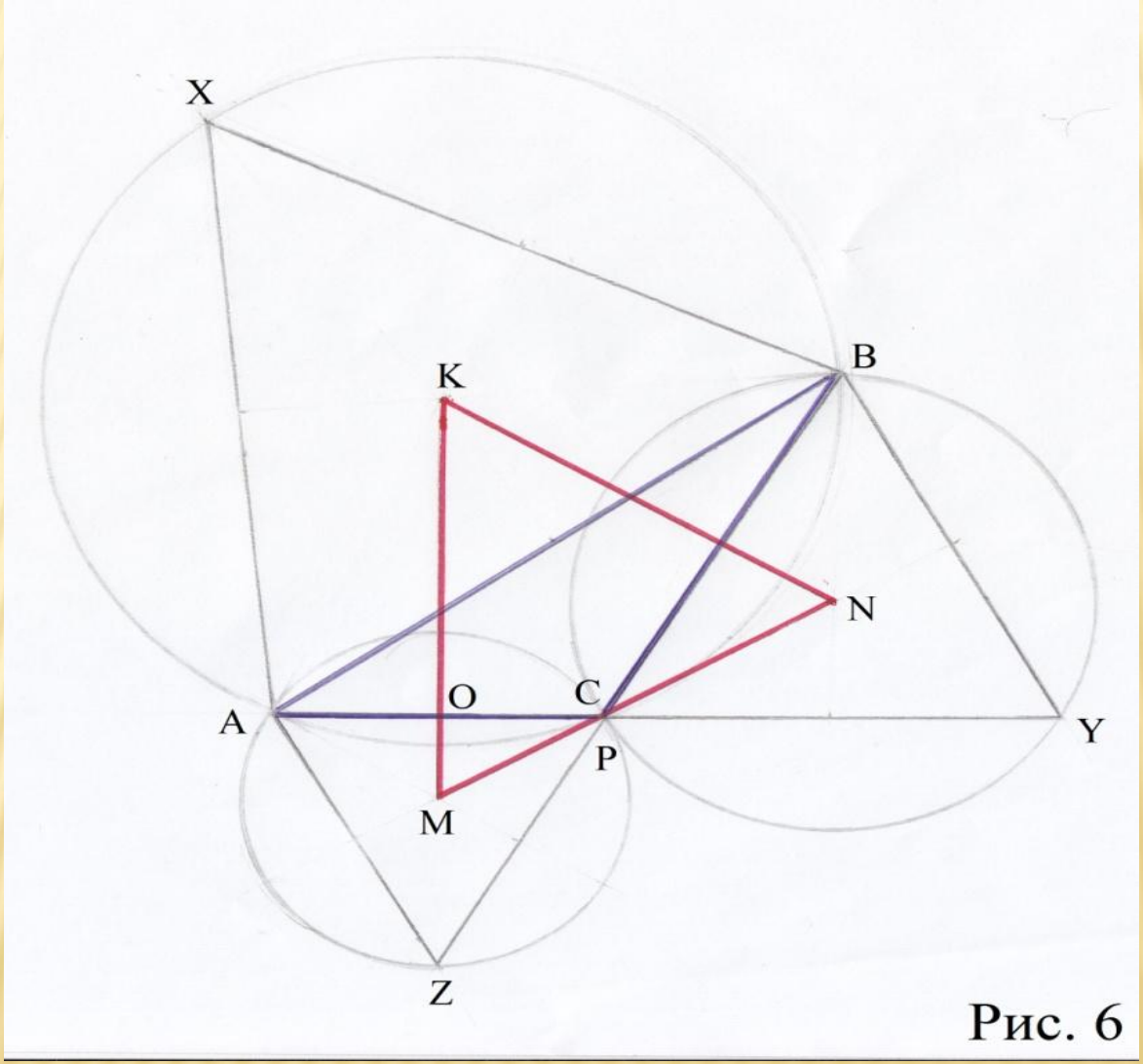

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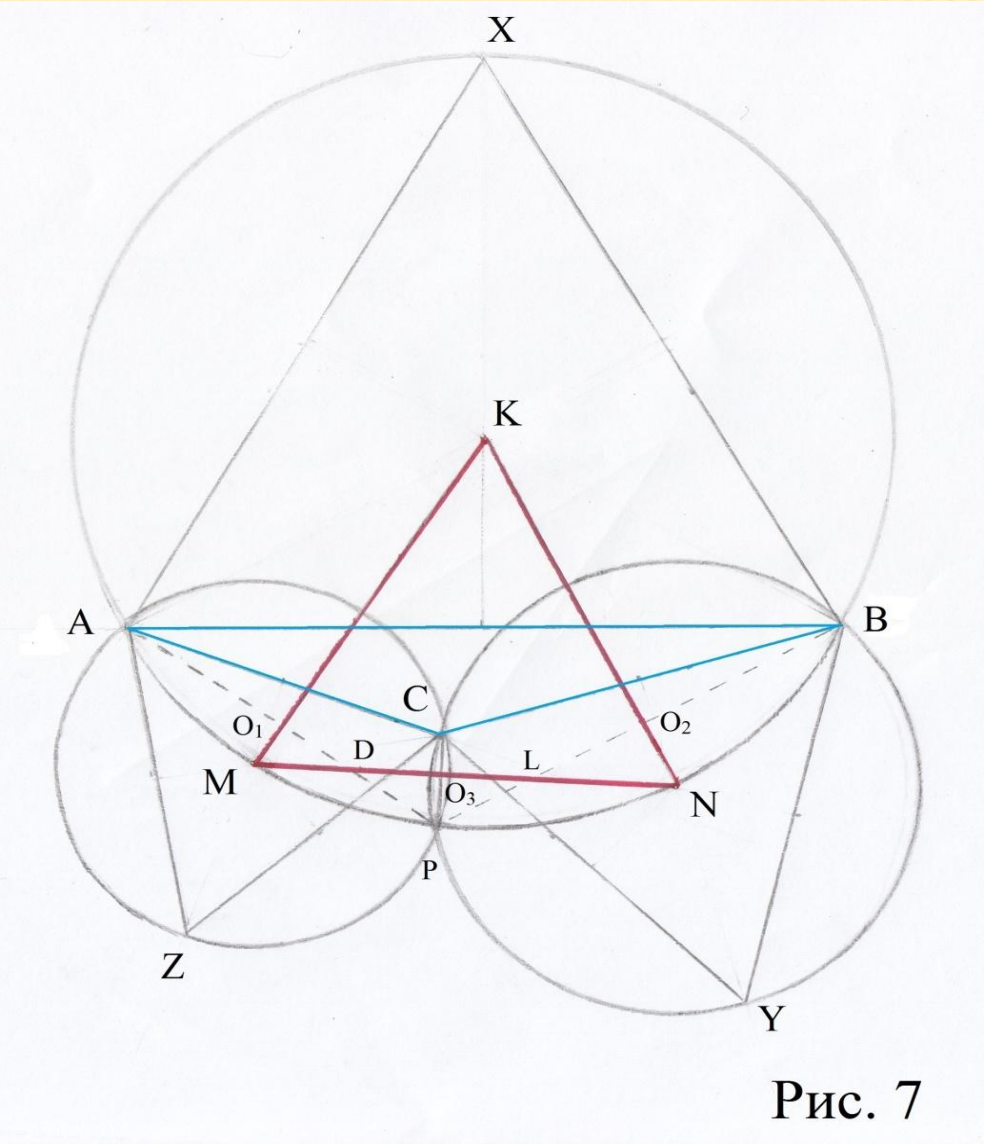


Рис. 7

ДОКАЗАТЕЛЬСТВО №3

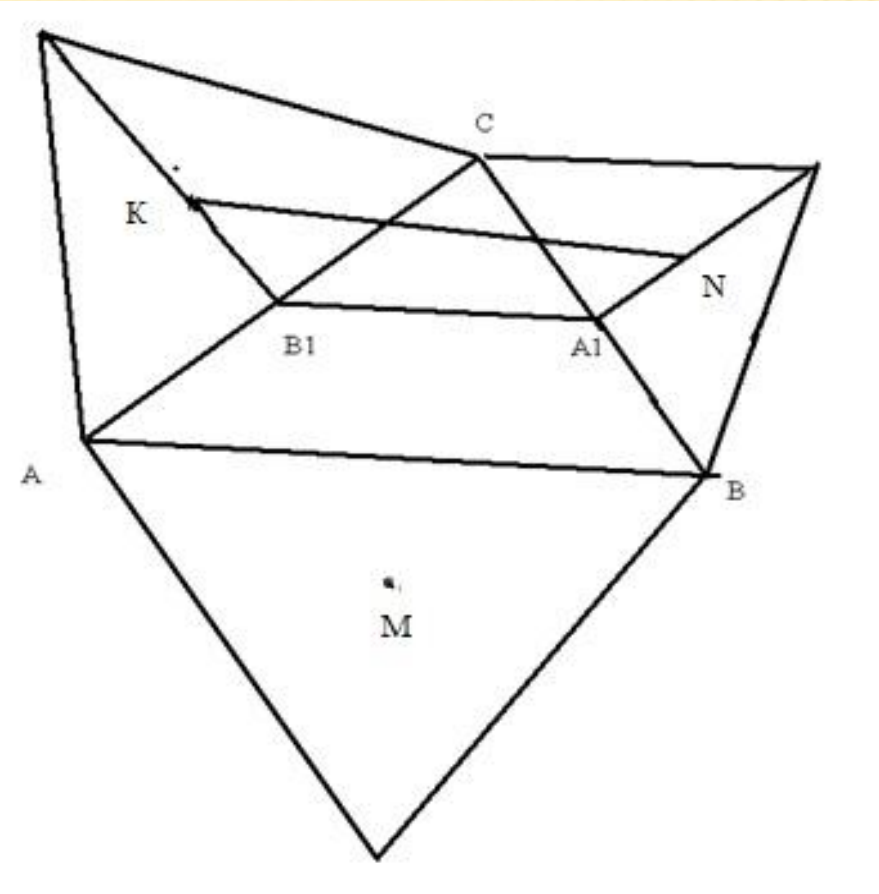


Рис. 6

$$KN^2 = \frac{1}{6}\left(a^2 + b^2 + c^2 + 4\sqrt{3}S\right).$$

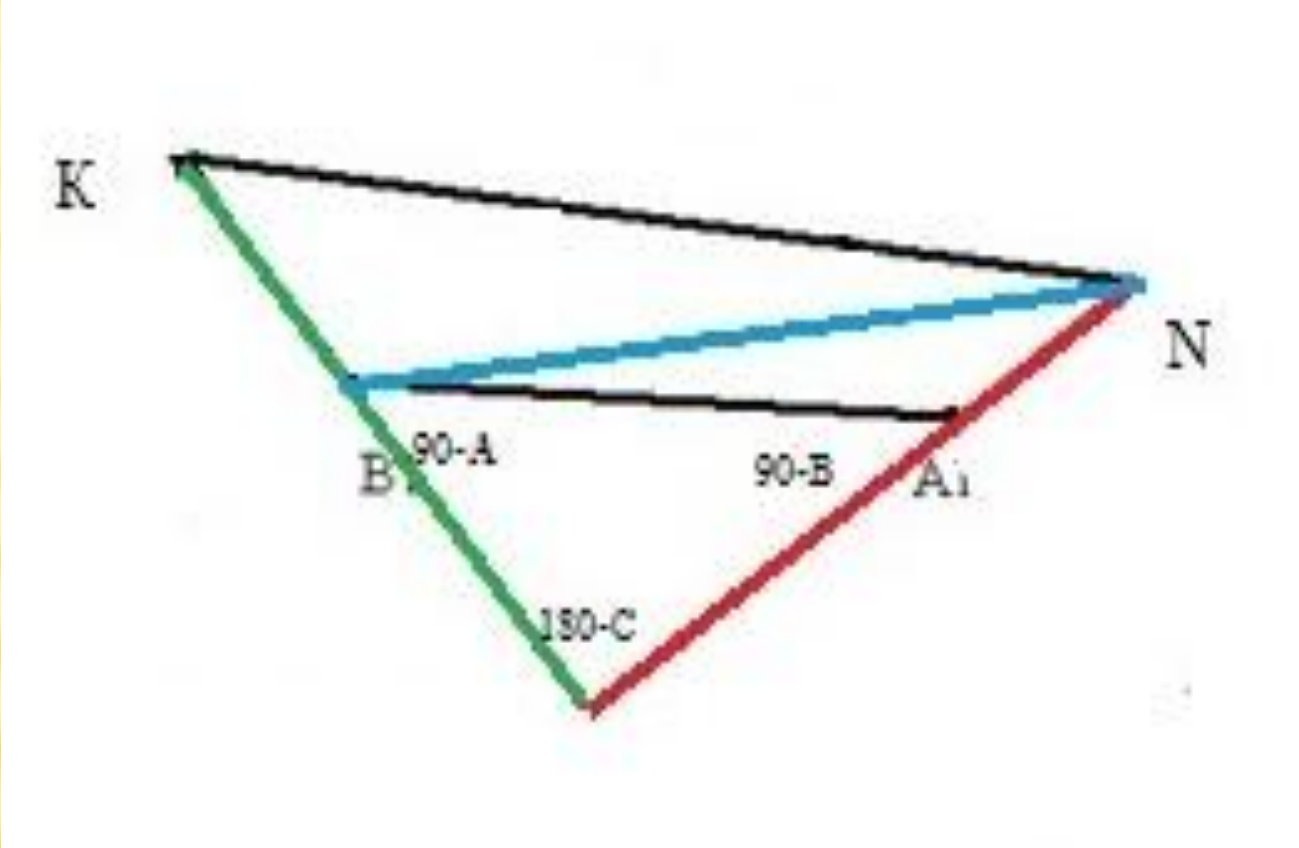


Рис. 7

$KN^2 = KB_1^2 + B_1A_1^2 + A_1N^2 + 2\,KB_1 \cdot B_1A_1 \cdot \cos(90° - A) + 2\,KB_1 \cdot A_1N \cdot \cos C + 2\,B_1A_1 \cdot A_1N \cdot \cos(90° - B) = (\frac{b\sqrt{3}}{6})^2 + (\frac{c}{2})^2 + (\frac{a\sqrt{3}}{6})^2 + 2 \cdot \frac{b\sqrt{3}}{6} \cdot \frac{c}{2} \cdot \sin A + 2 \cdot \frac{b\sqrt{3}}{6} \cdot \frac{a\sqrt{3}}{6} \cdot \cos C + 2 \cdot \frac{a\sqrt{3}}{6} \cdot \frac{c}{2} \cdot \sin B.$

Поэтому $KN^2 = \frac{a^2 + b^2}{12} + \frac{c^2}{4} + \frac{ac\sqrt{3}}{6}\sin\angle B + \frac{bc\sqrt{3}}{6}\sin\angle A + \frac{2ab}{12}\cos\angle C$.

Но $ac\sin\angle B = bc\sin\angle A = 2S, 2ab\cos\angle C = a^2 + b^2 - c^2$.

Следовательно, $KN^2 = \frac{1}{6}\left(a^2 + b^2 + c^2 + 4\sqrt{3}S\right)$.

ЗВЕЗДА ДАВИДА

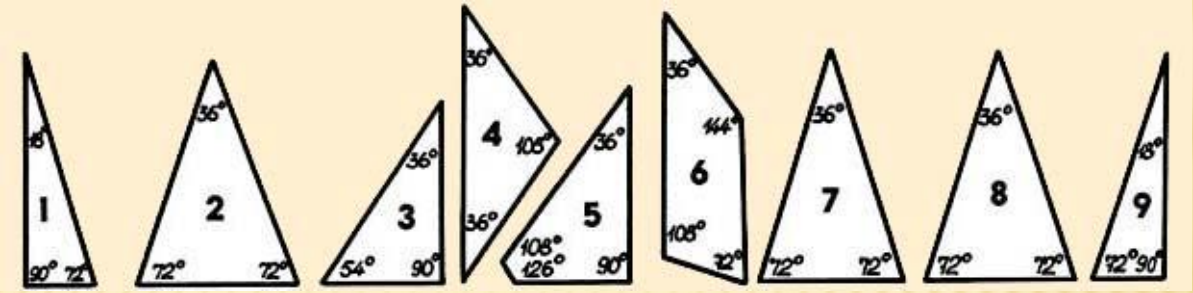
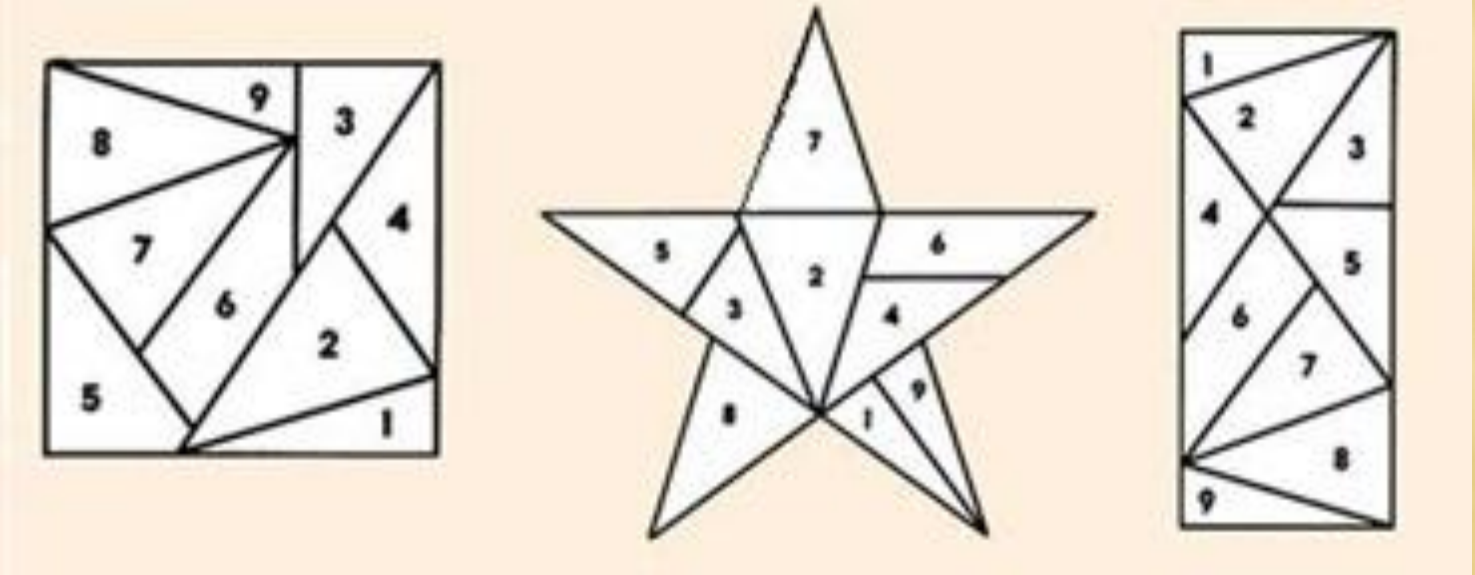


Рис. 8



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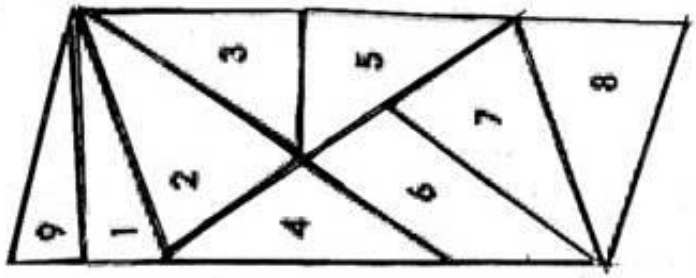
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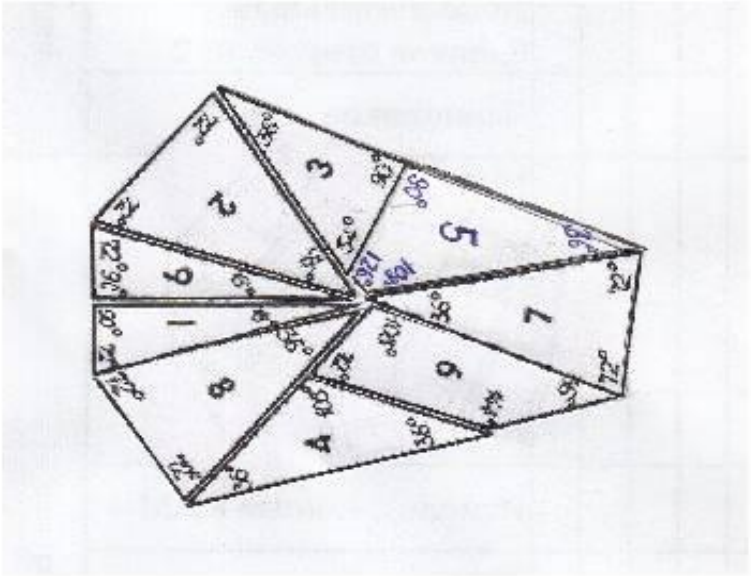
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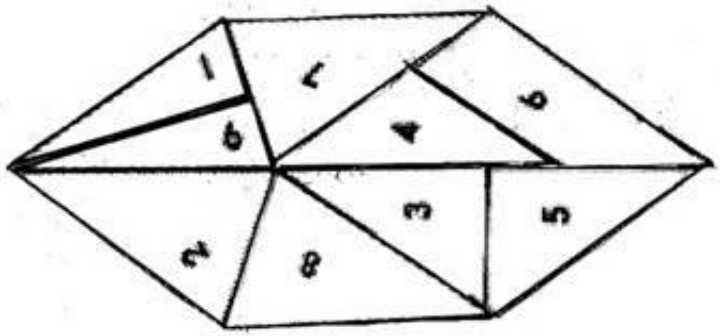
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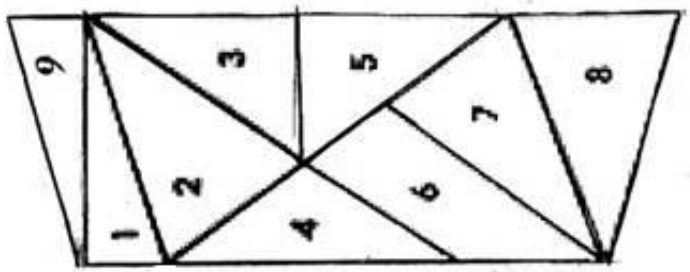
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СПАСИБО ЗА ВНИМАНИЕ!