

SIRTLARNING O‘ZARO KESISHUVI.

Masalaning sharti: Berilgan geometrik sirtlarning profil proyeksiyasi topilsin. Sirtlarning kesishuv chizig‘i yasalsin.

Masalani yechish algoritmi:

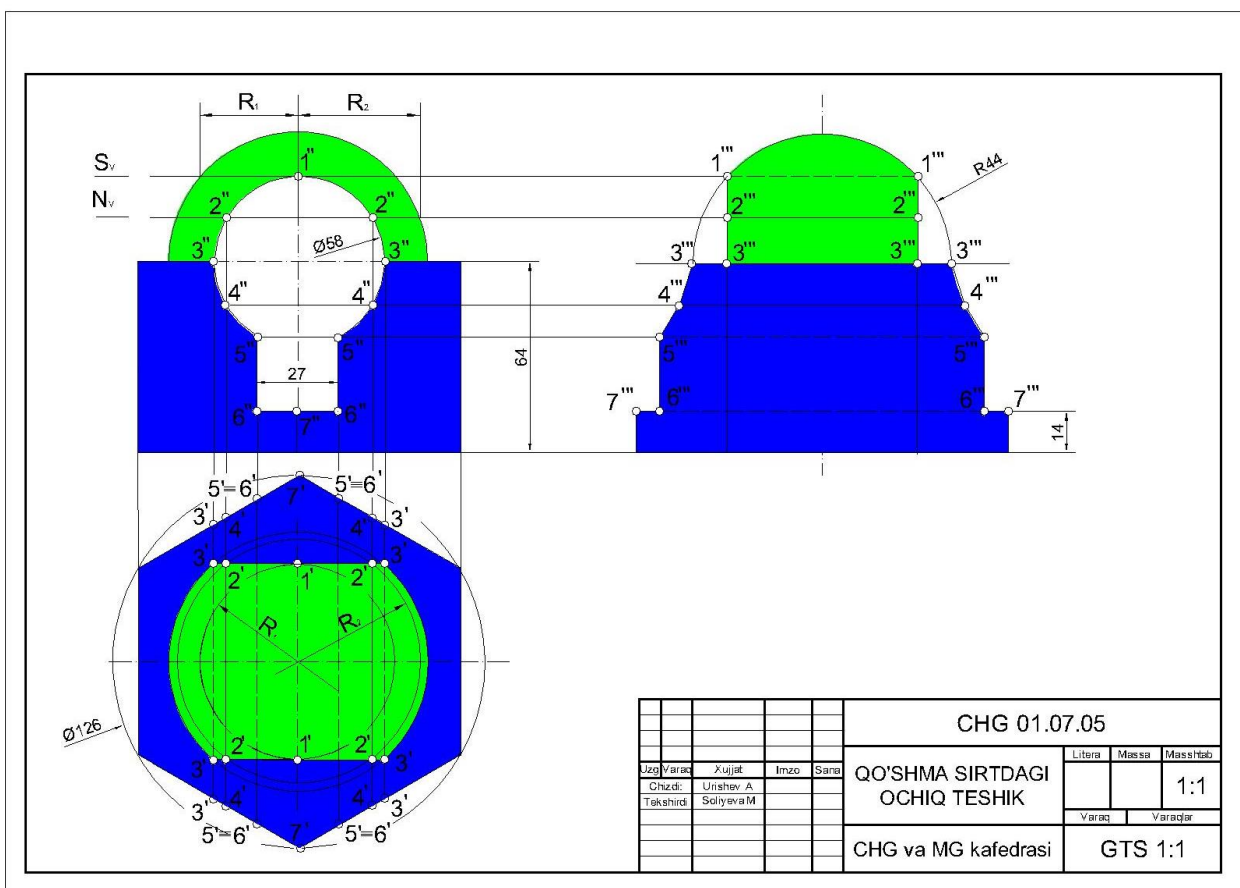
1. Sirtlarning (konfiguratsiyasi) turi va proyeksiya tekisliklariga nisbatan joylashuvi o‘rganiladi. Sirtlarning ikki ko‘rinishiga asosan uchinchisi quriladi. Bizning misolimizda sirtlarning biri to‘g‘ri konus, ikkinchisi asosi to‘rt burchakli prizmadir.
2. Frontal proyeksiyada prizma qirralarini konus bilan kesishgan $1''$, $2''$, $3''$, $4''$, $5''$, $6''$, $7''$ va $8''$ majburiy va oraliq nuqtalar belgilanadi (1- rasm).
 - 2.1. Tayanch $1''$, $3''$, $5''$, $7''$ nuqtalarning boshqa proyeksiyalarini yasash uchun prizma qirralari orqali R_V , M_V , T_V kesuvchi gorizont tekisliklar o‘takaziladi. So‘ngra gorizont proyeksiyada R_1 , R_3 , R_5 va R_7 radiusli aylana chiziladi.
 - 2.2. Ushbu aylanalarda $1''$, $3''$, $5''$ va $7''$ nuqtalarning gorizont proyeksiyalari $1'$, $3'$, $5'$ va $7'$ proyeksion bog‘lovchi chiziqlar yordamida yasaladi.
 - 2.3. Kesishuv chizig‘iga oid $1''$, $5''$ nuqtalarning profil proyeksiyalari konusning konturida bo‘ladi.
 - 2.4. $3''$ hamda $7''$ nuqtalarning profil proyeksiyalari bog‘lovchi chiziqlar va nuqtalarning gorizont proyeksiyalaridagi ordinatalari yordamida yasaladi.
3. So‘ngra kesishuv chizig‘ini ng oraliq nuqtalari aniqlanadi.
 - 3.1. Buning uchun Q_V yordamchi kesuvchi tekisliklarni o‘tkazamiz. Q_V gorizont tekislik konusni R_2 aylana bo‘yicha, prizmani esa ikki a va b to‘g‘ri chiziqlar bo‘yicha kesib o‘tadi.
 - 3.2. Gorizont proyeksiyada R_2 aylana hamda a va b to‘g‘ri chiziqlarning kesishuvidan $2'$ va $8'$ nuqtalari yasaladi. Nuqtalarning ordinatalari va proyeksion bog‘lovchi chiziqlar bo‘yicha ushbu nuqtalarni profil proyeksiyalari $2'''$, $8'''$ lar yasaladi.
4. Yasash algoritmining 3 punktida bajarilgan ishlardagidek T_V gorizont kesuvchi tekislik yordamida $4''$ va $6''$ nuqtalarning gorizont va profil proyeksiyalari aniqlanadi.
5. Topilgan nuqtalarni gorizont va profil proyeksiyalari lekalo yordamida silliq tutashtirilib, egri chiziqlar hosil qilinadi.
6. Berilgan sirtlarning ko‘rinadigan yoki ko‘rinmaydigan elementlarini aniqlash uchun:
 - 6.1. Gorizont proyeksiyada ko‘rinish-ko‘rinmasligi M_V tekislik yordamida aniqlanadi. Bunda M_V tekislikdan yuqoridagi nuqtalar

gorizontal proyeksiyada ko‘rinadi. Undan pastki nuqtalar gorizontal proyeksiyada ko‘rinmaydi.

6.2. Profil proyeksiyada ko‘rinish-ko‘rinmaslik K_V simmetriya tekisligi yordamida aniqlanadi. K_V tekisligidan o‘ng tomondagi nuqtalar profil proyeksiyada ko‘rinadi. Undan chap tomondagi nuqtalar profil proyeksiyada ko‘rinmaydi.

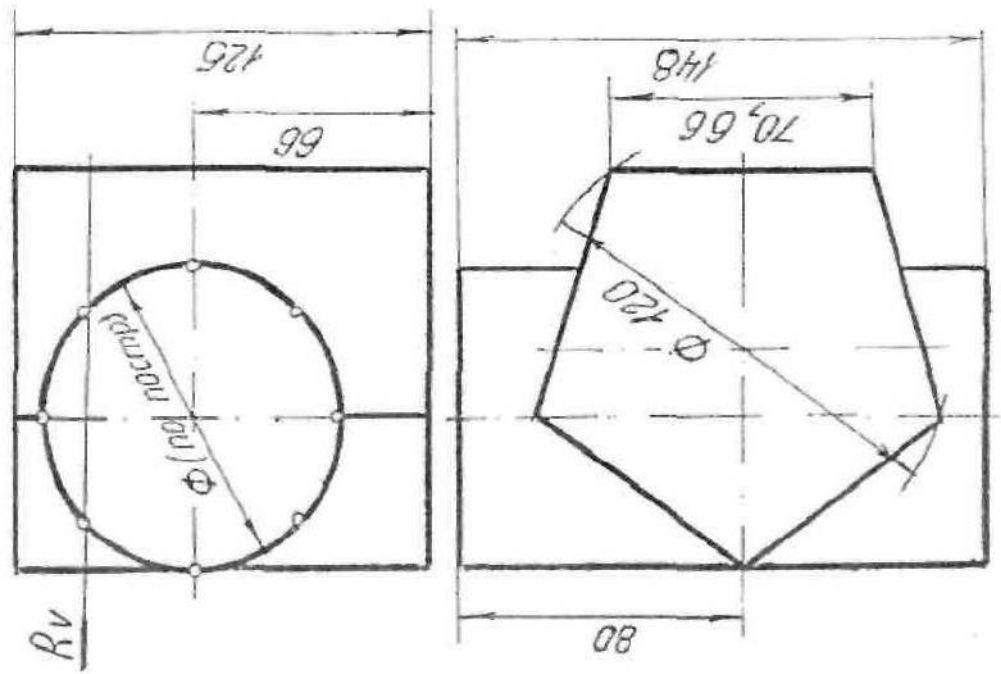
5. Topilgan nuqtalarni gorizontal va profil proyeksiyalari lekalo yordamida silliq tutashtirilib, egri chiziqlar hosil qilinadi.
6. Berilgan sirtlarning ko‘rinadigan yoki ko‘rinmaydigan elementlarini aniqlash uchun:

Quyida topshiriqning bajarilish namunasi (1-rasm) va topshiriq variantlari keltirilgan.

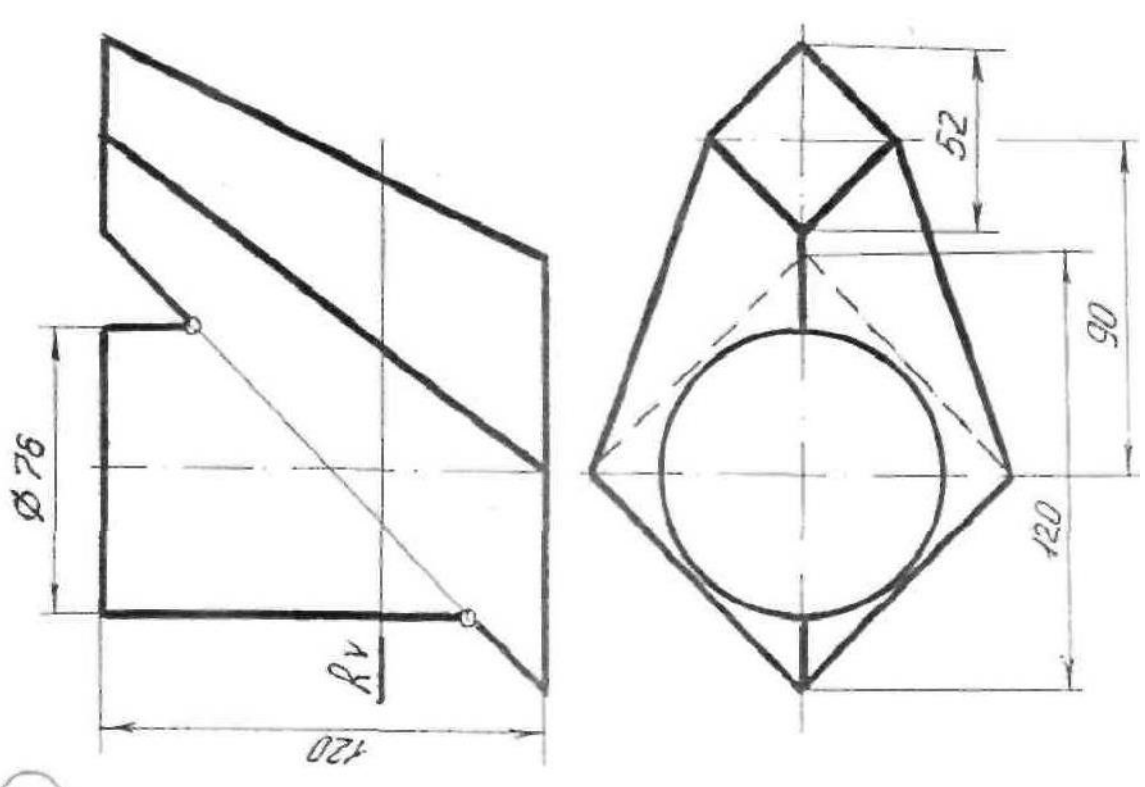


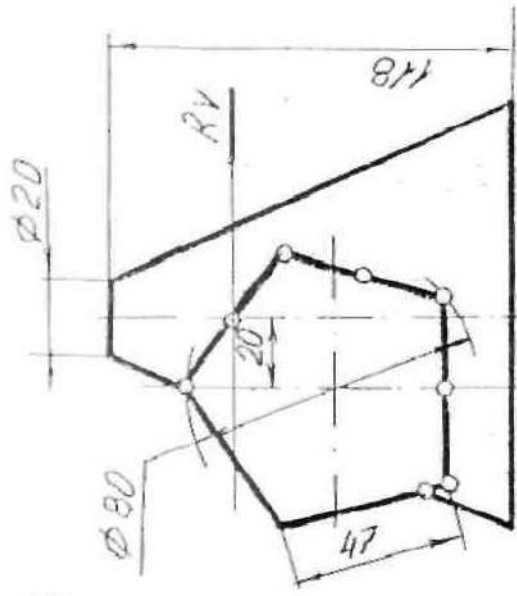
1-rasm

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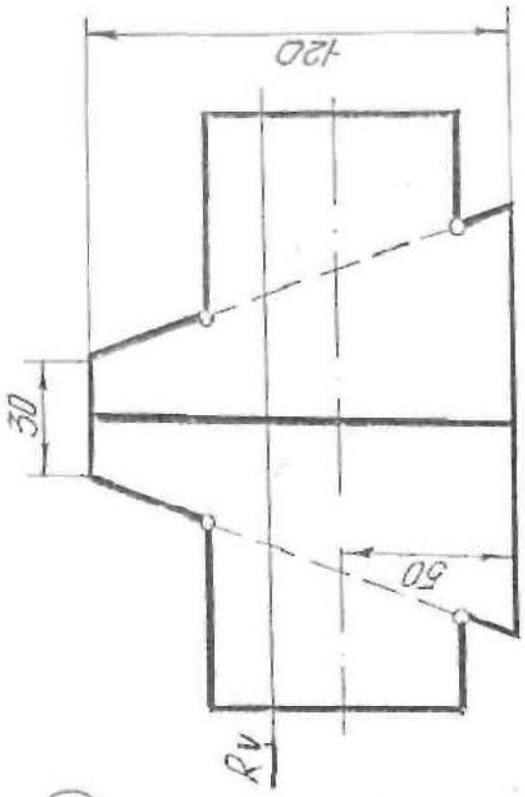
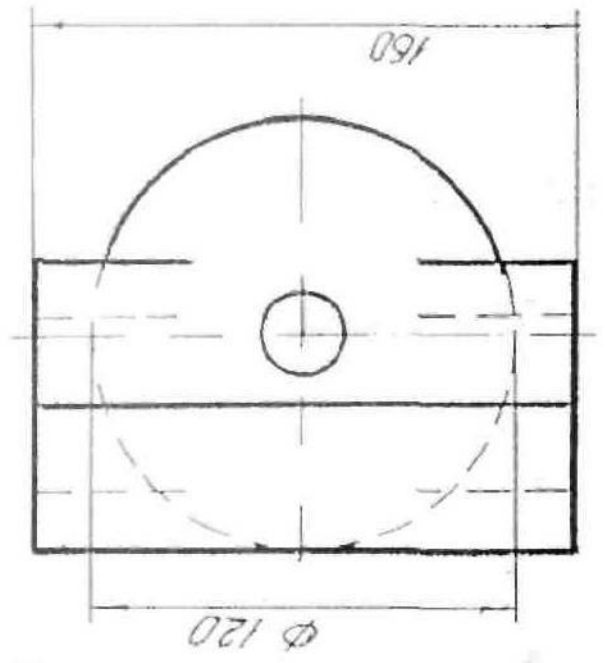


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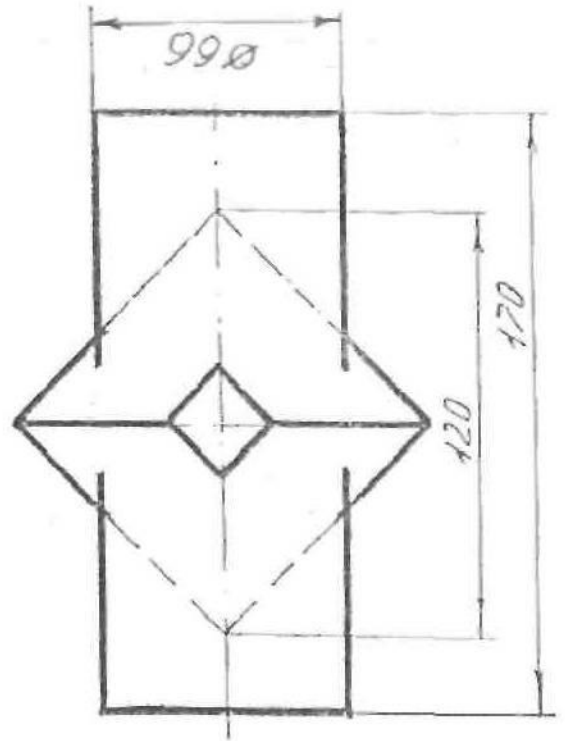


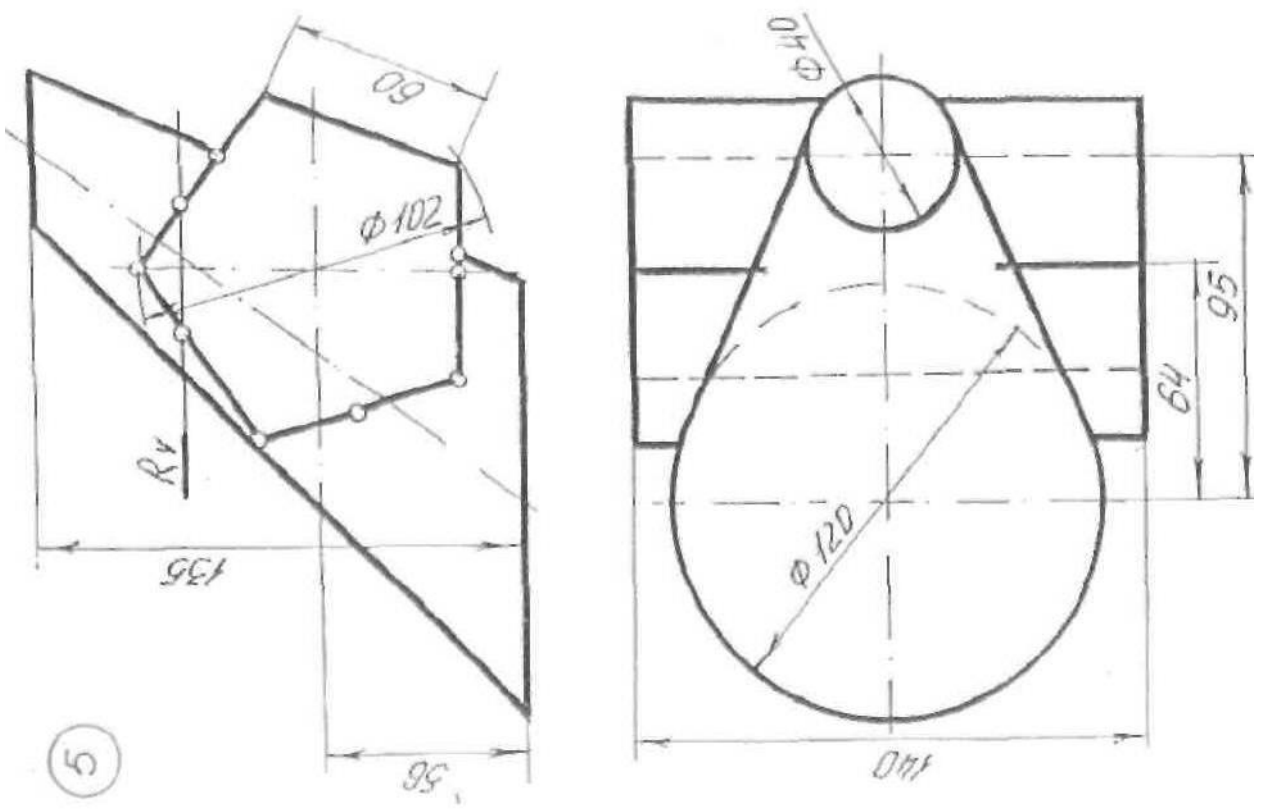
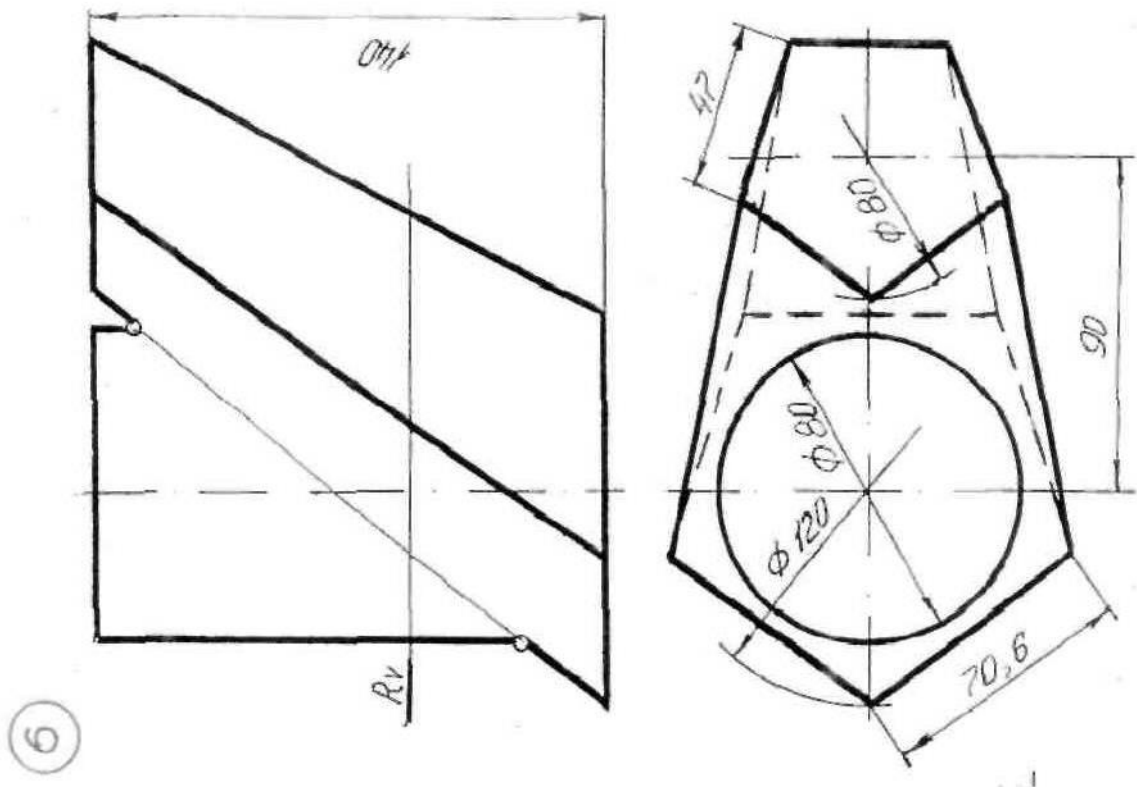


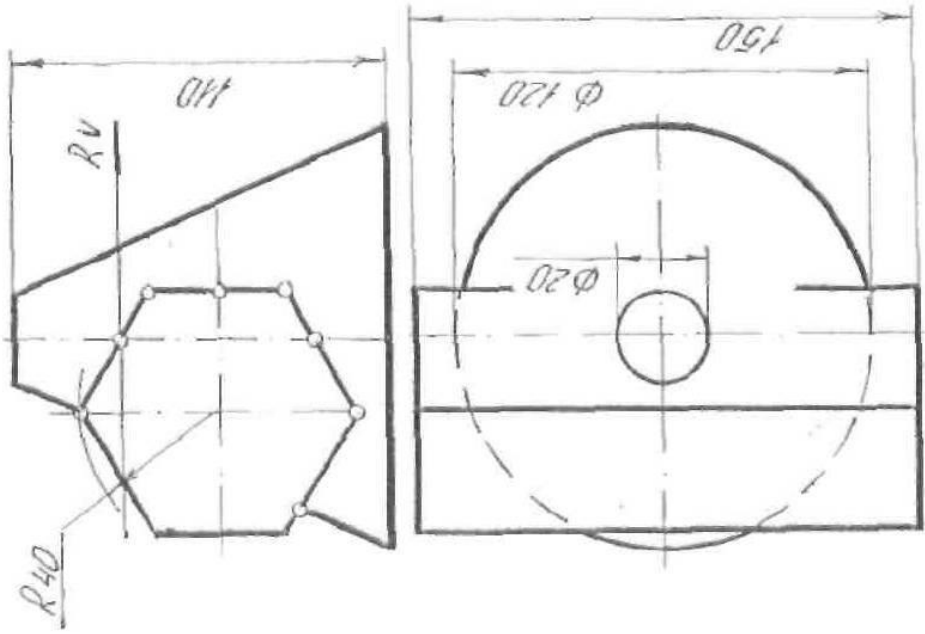
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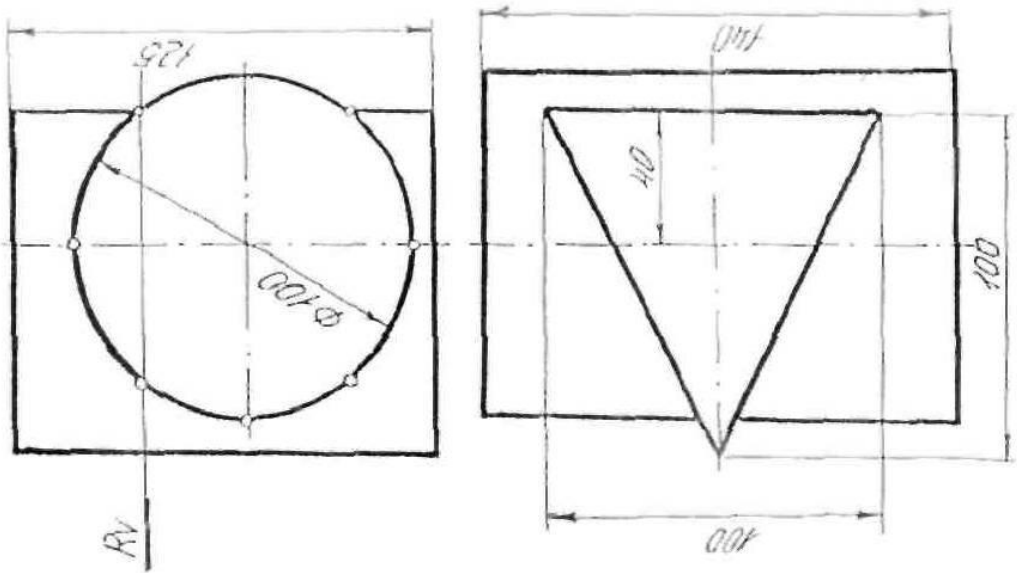
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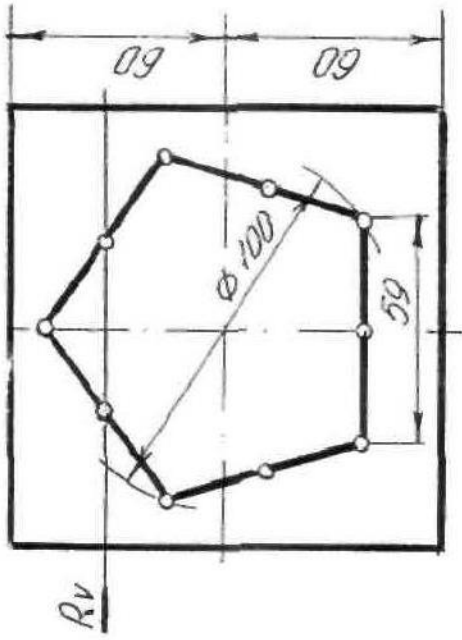




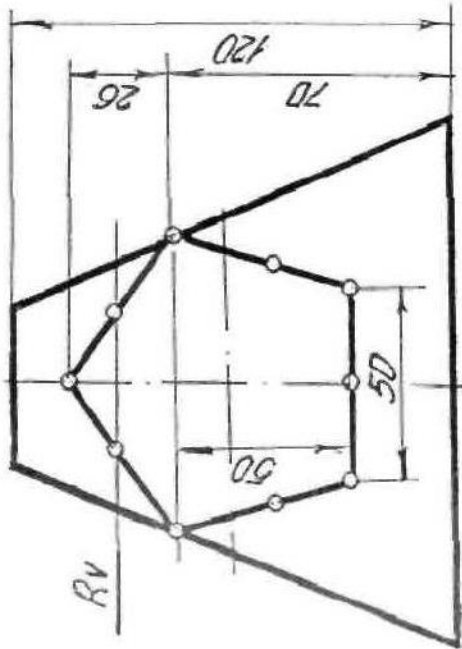
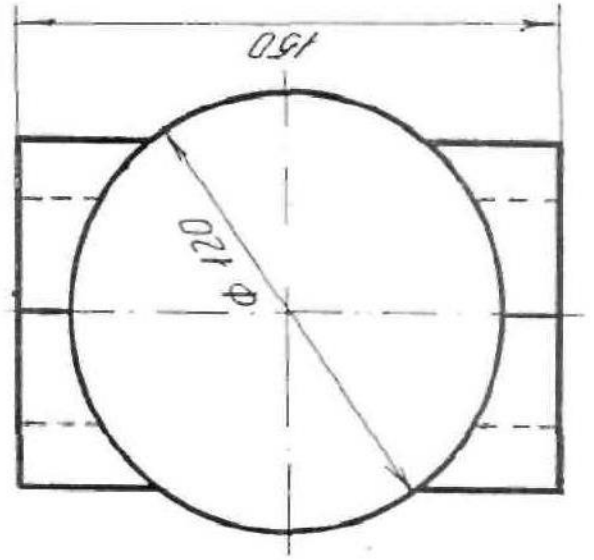
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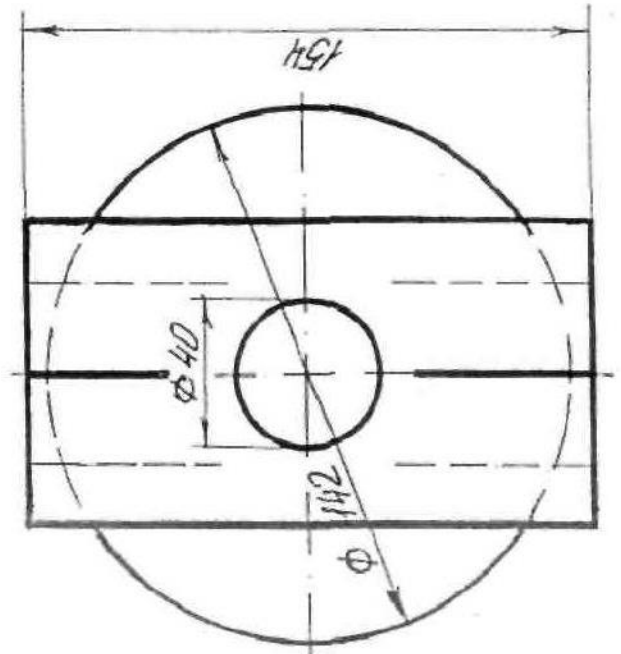
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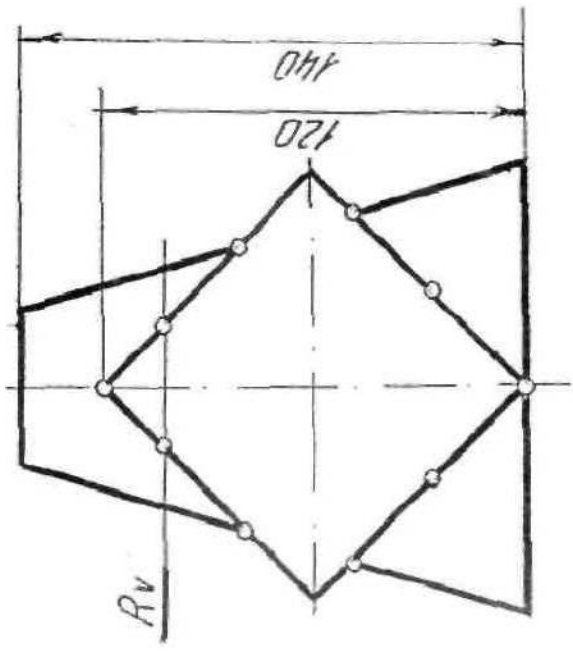


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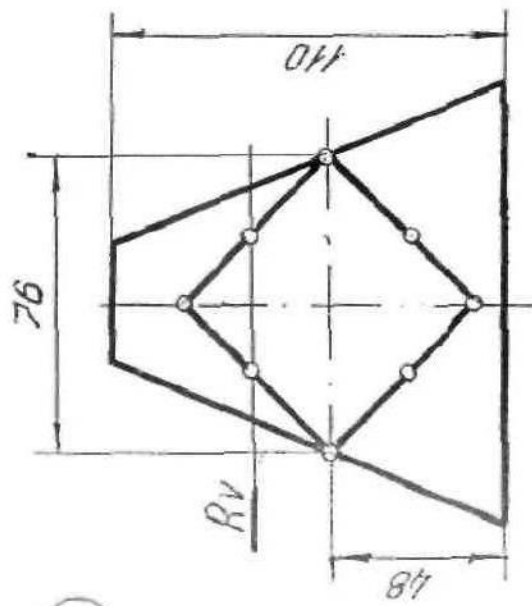
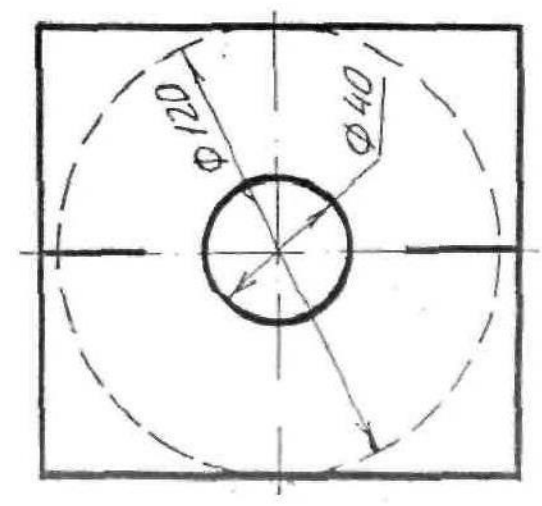


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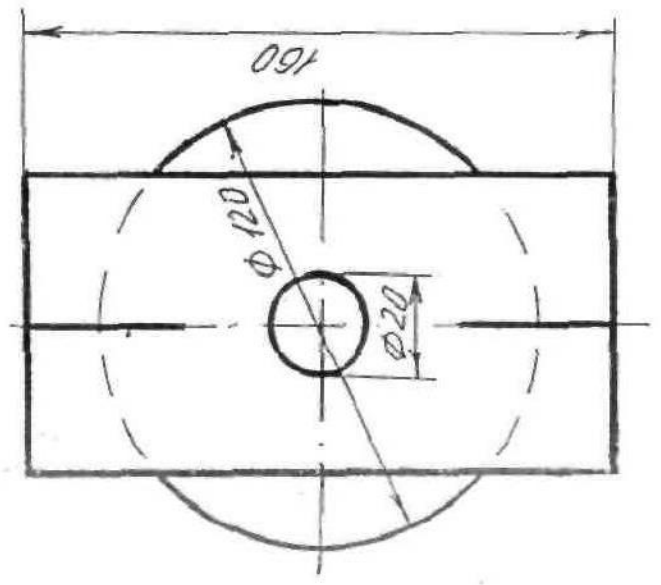


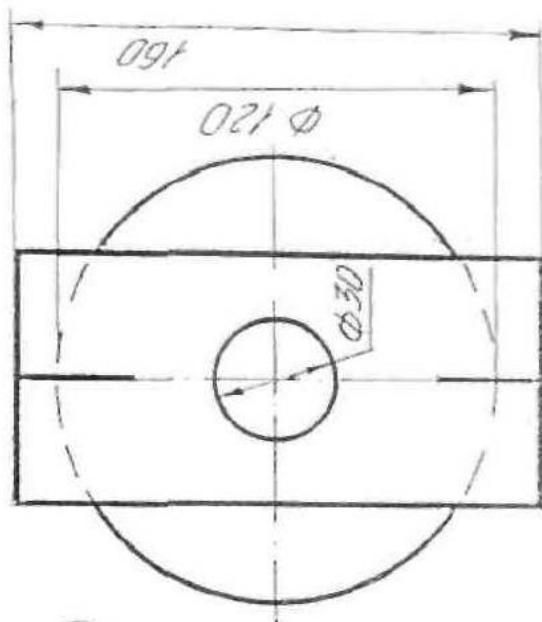


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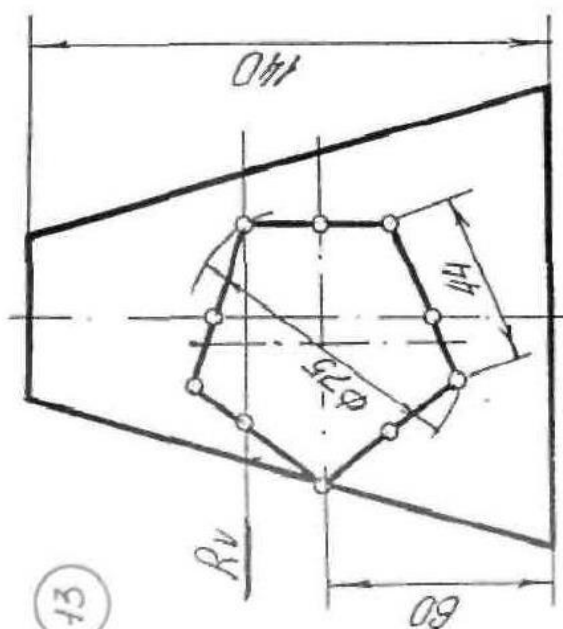
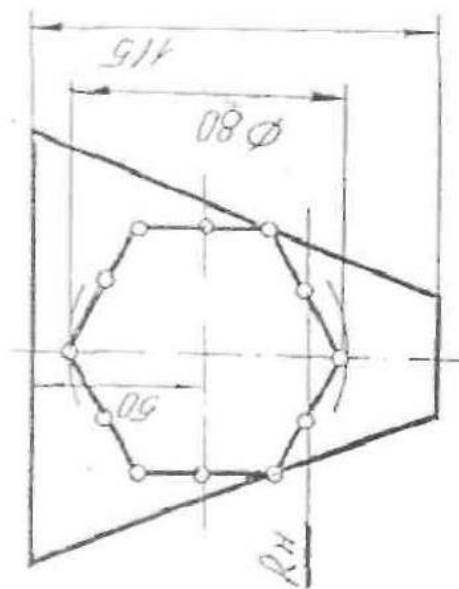


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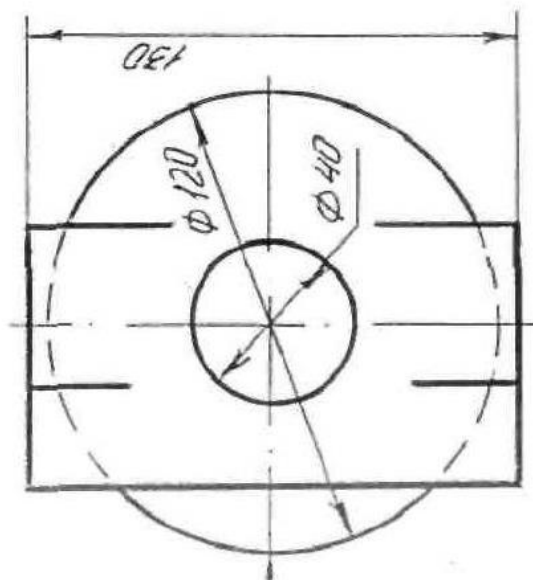


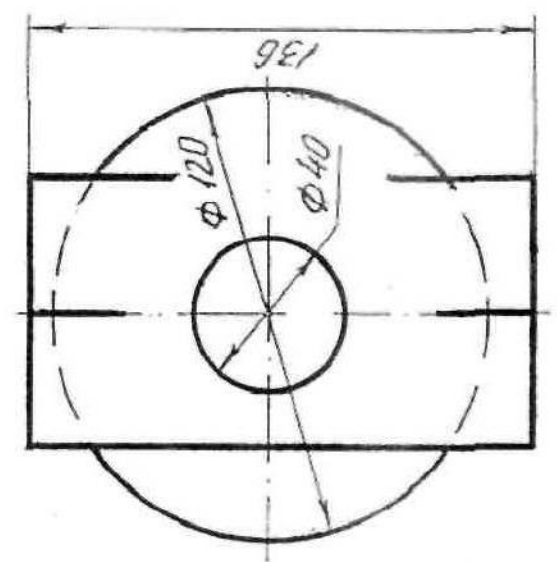
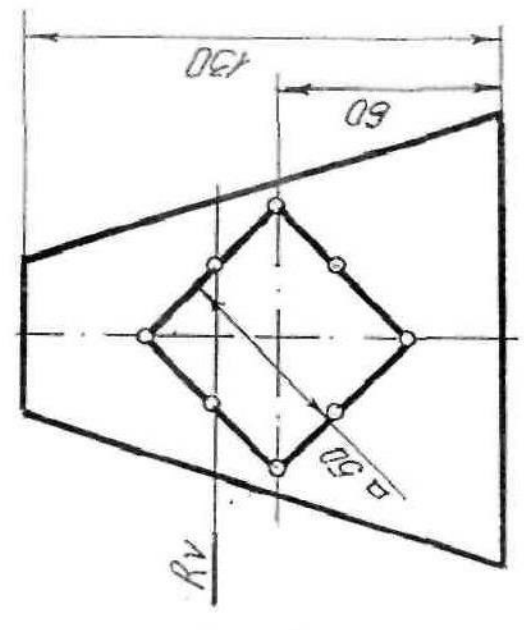
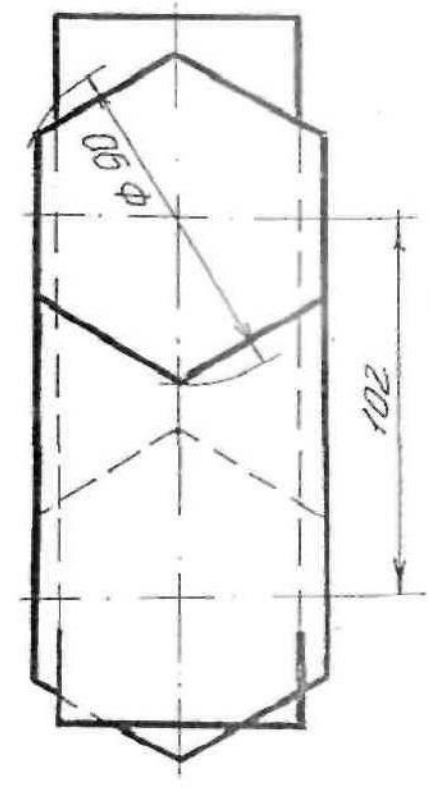
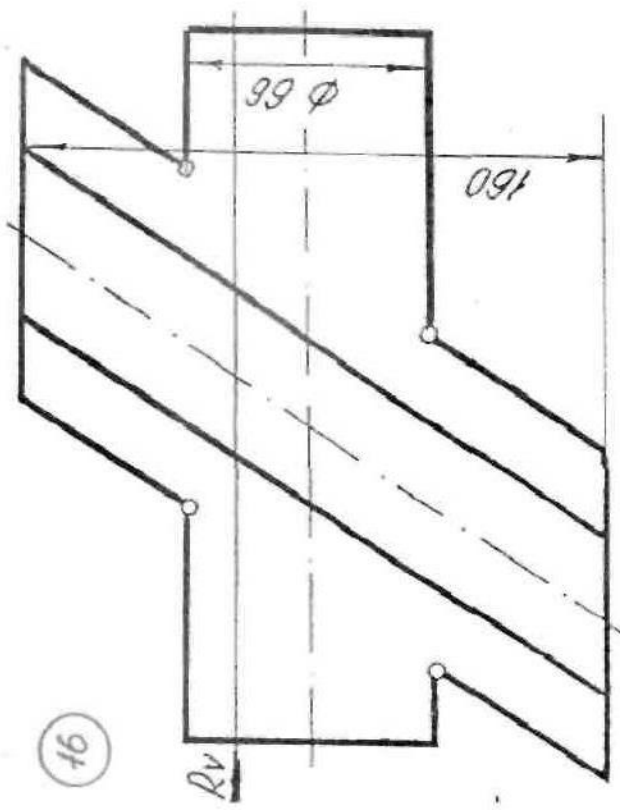


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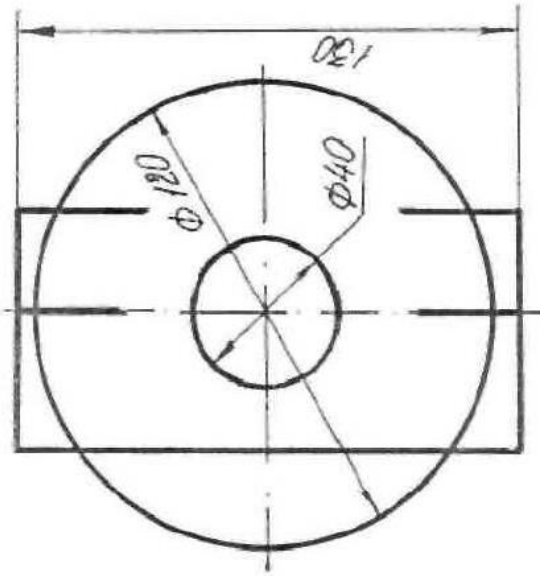
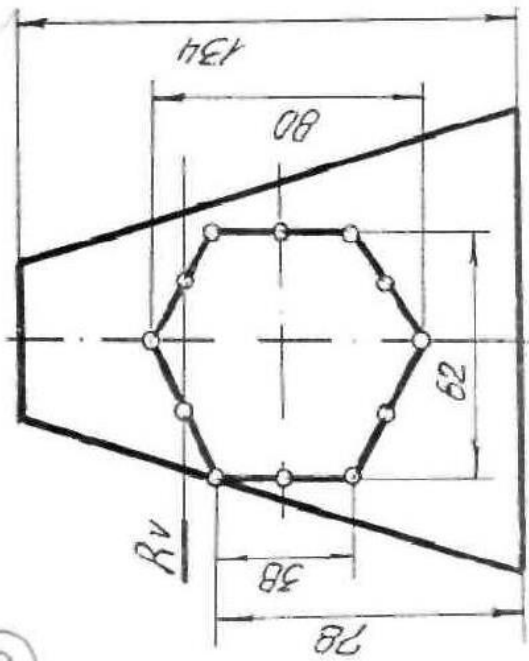




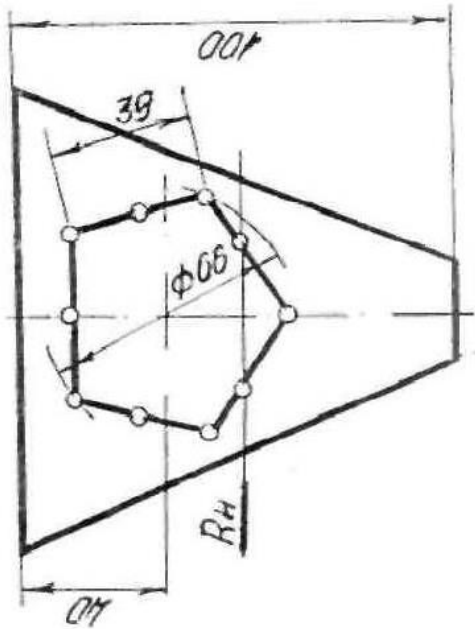
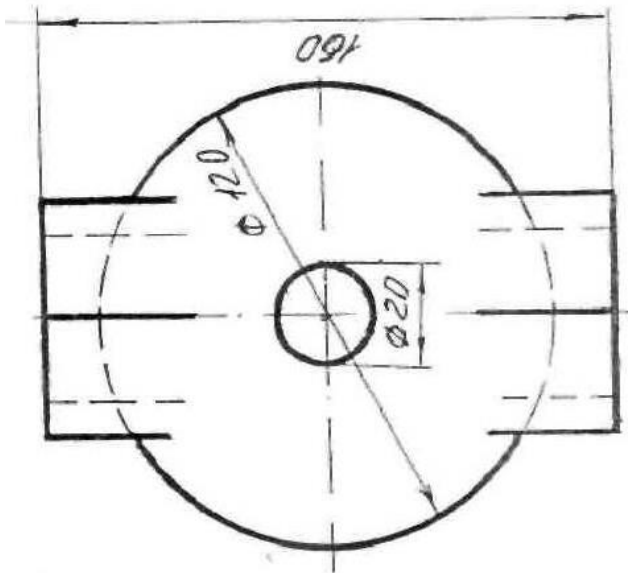
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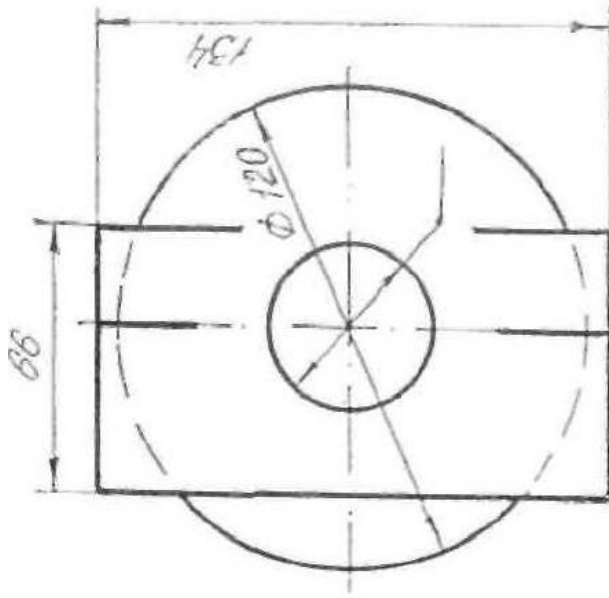
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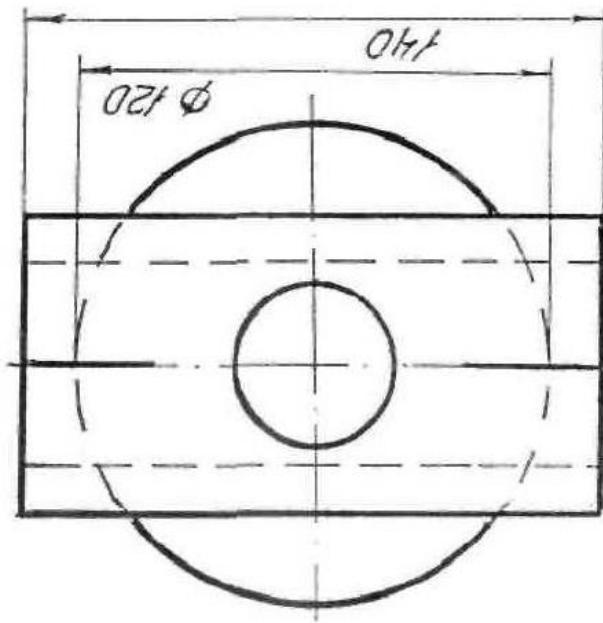
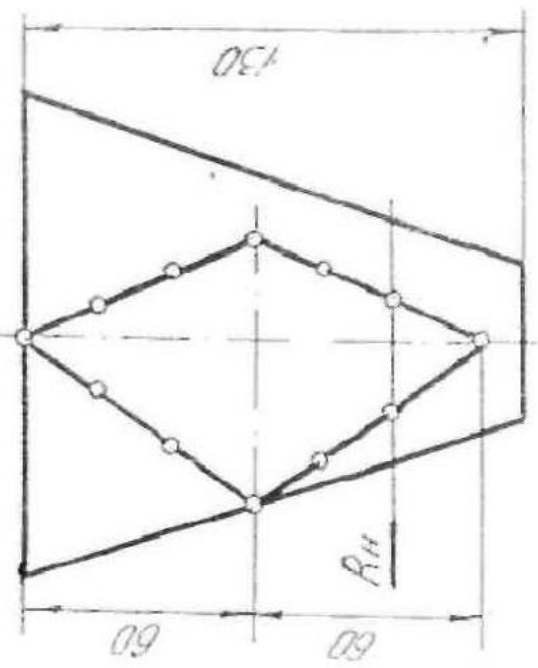


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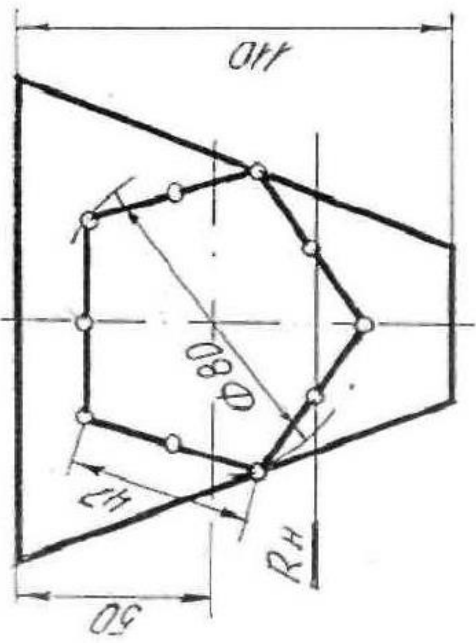


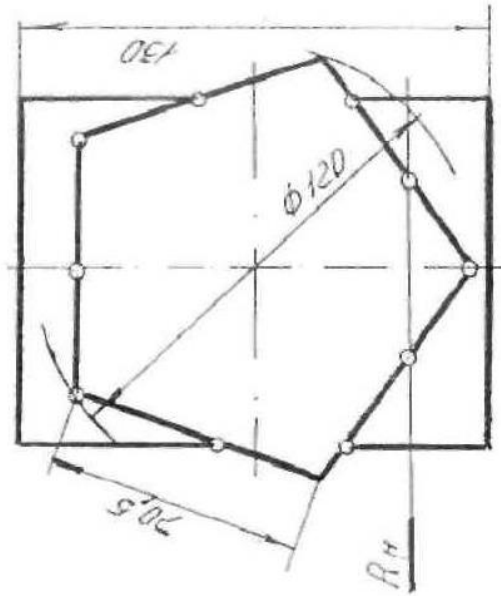
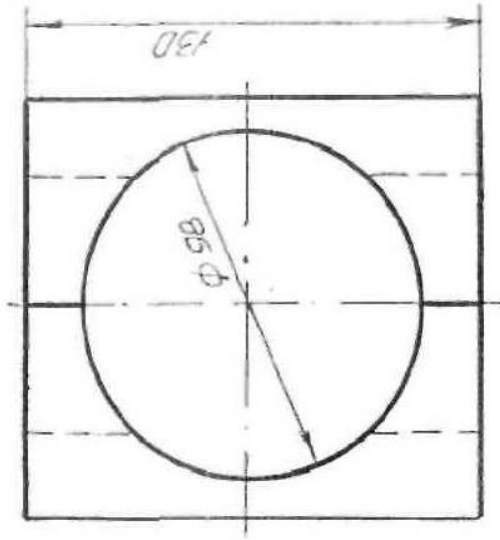


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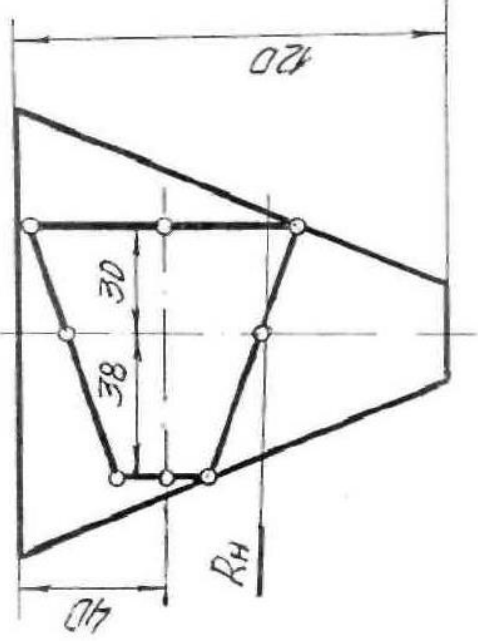
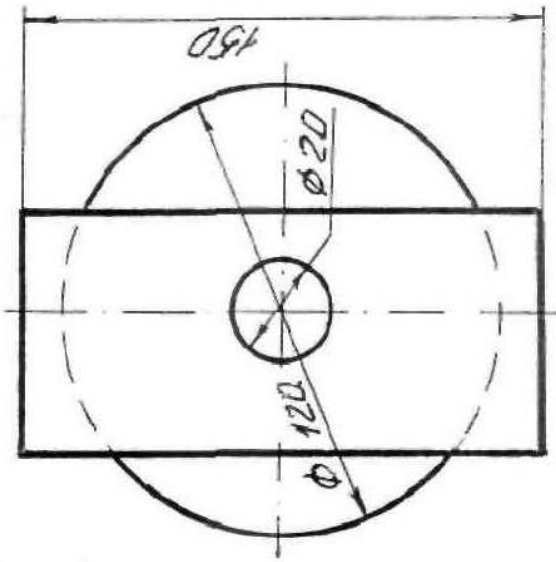


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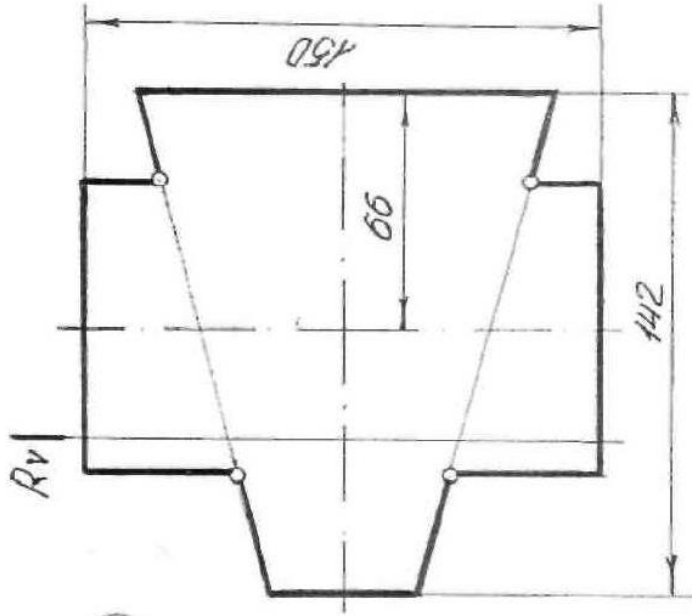




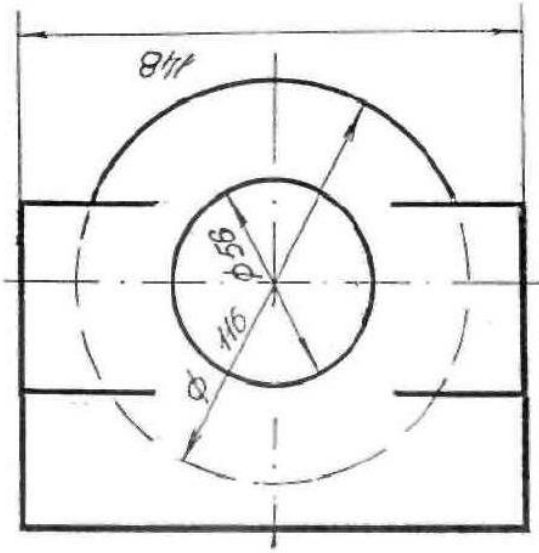
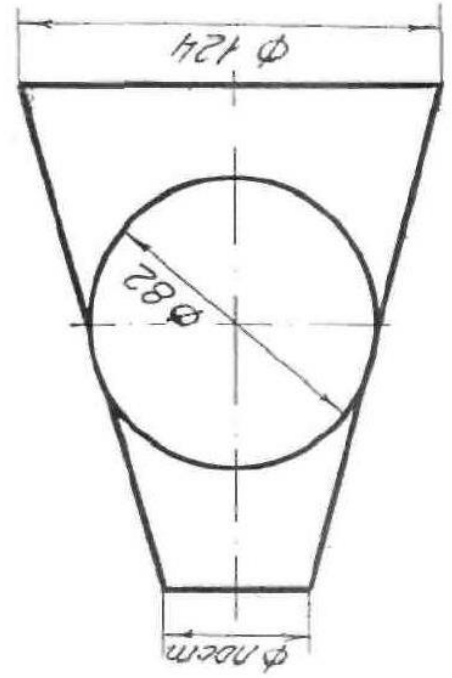
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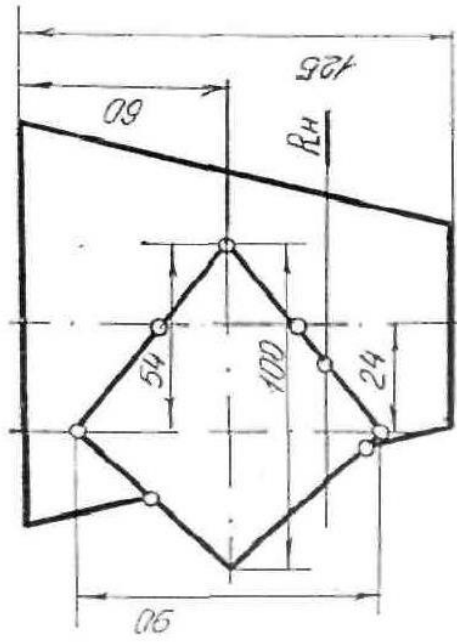
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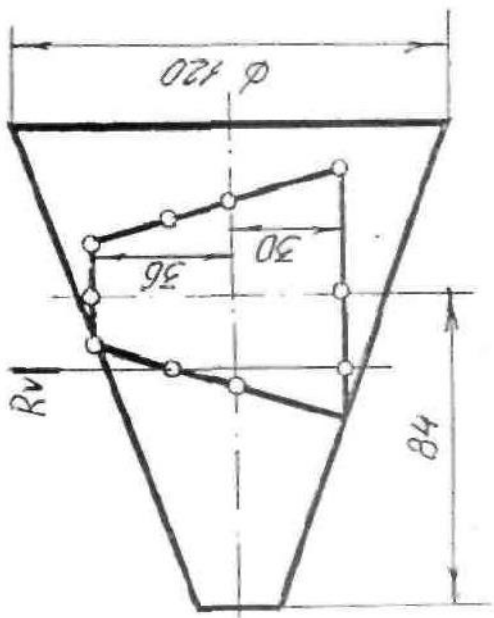


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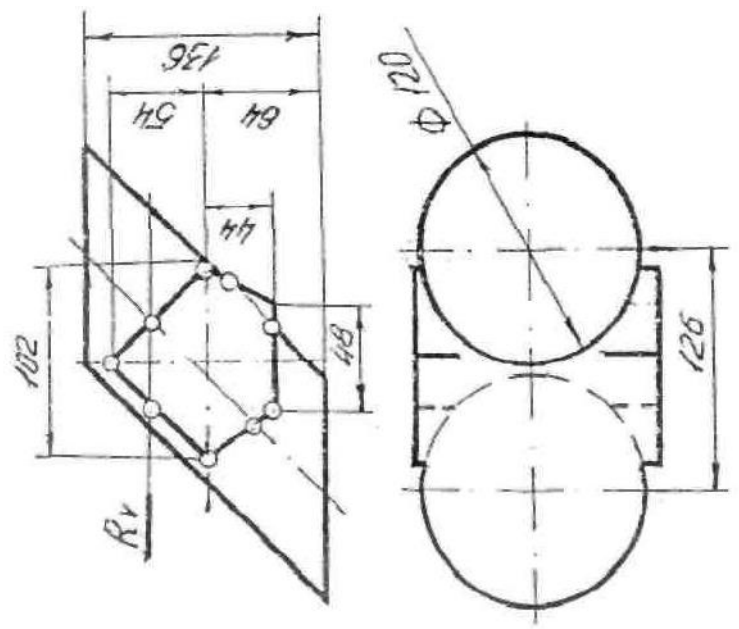


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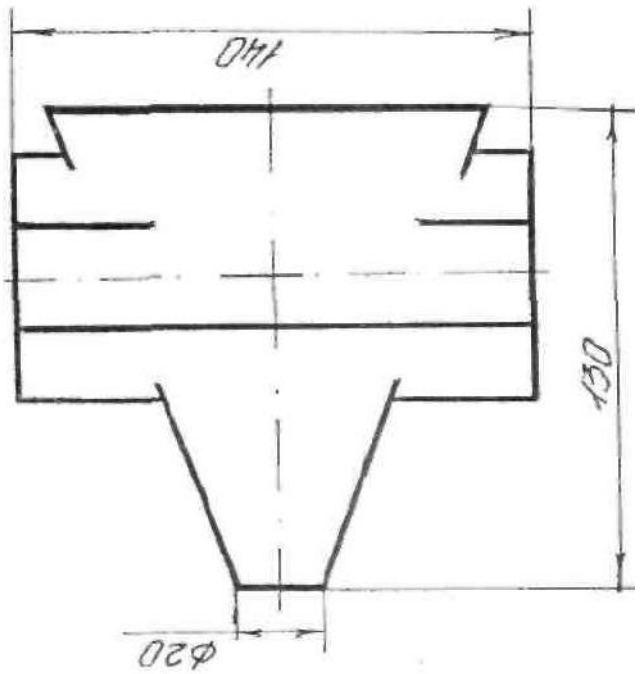




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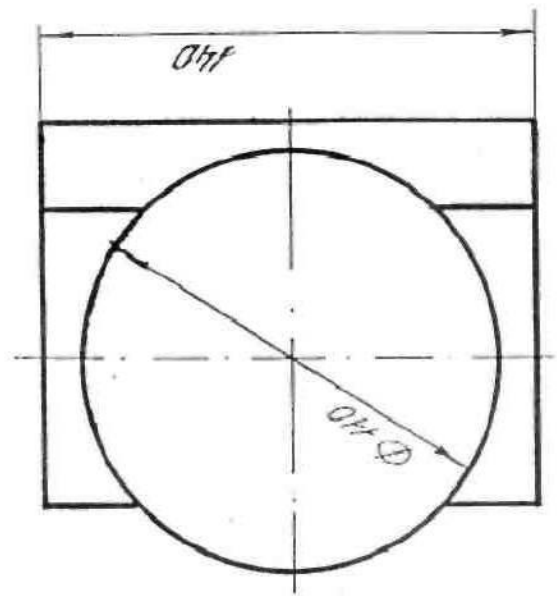
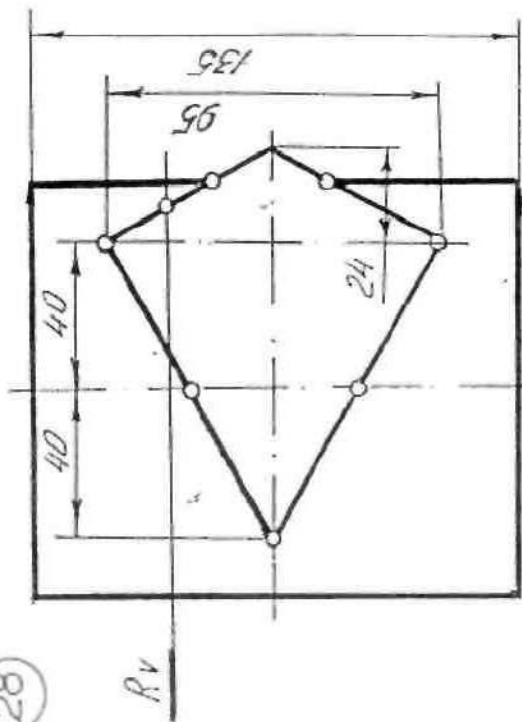


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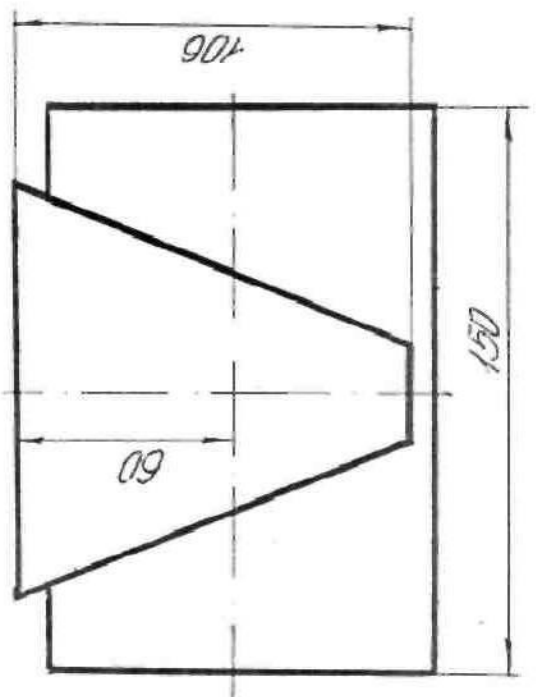
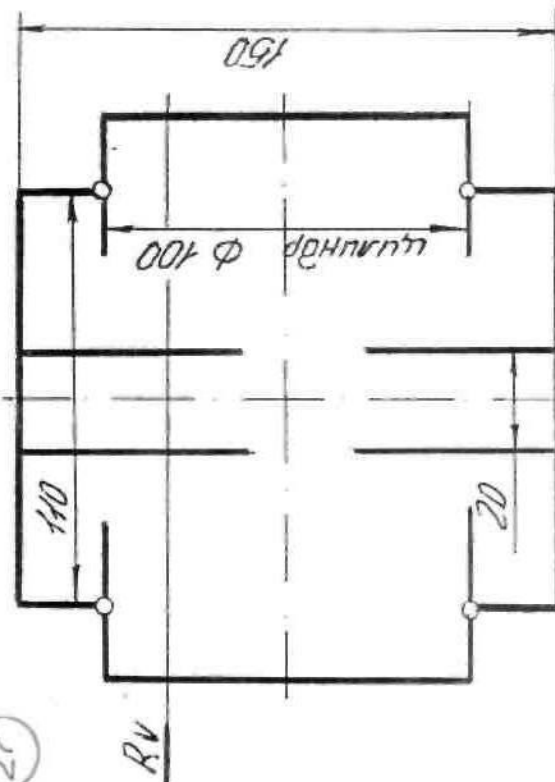


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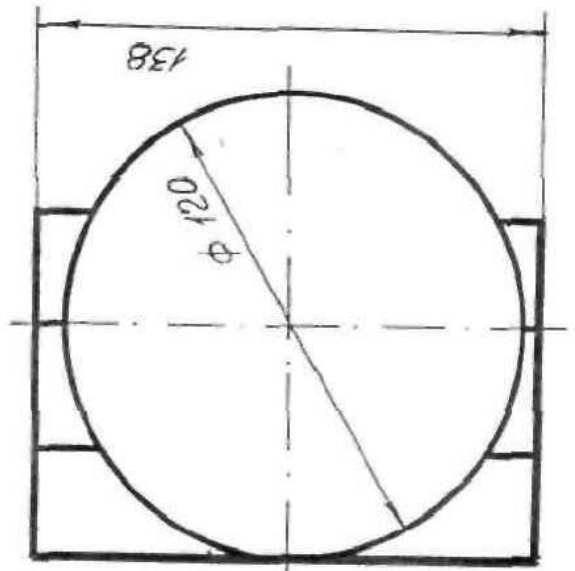
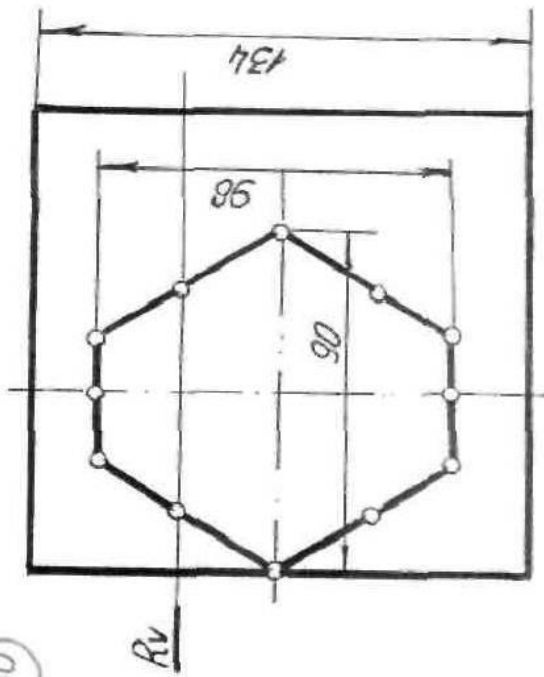
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