

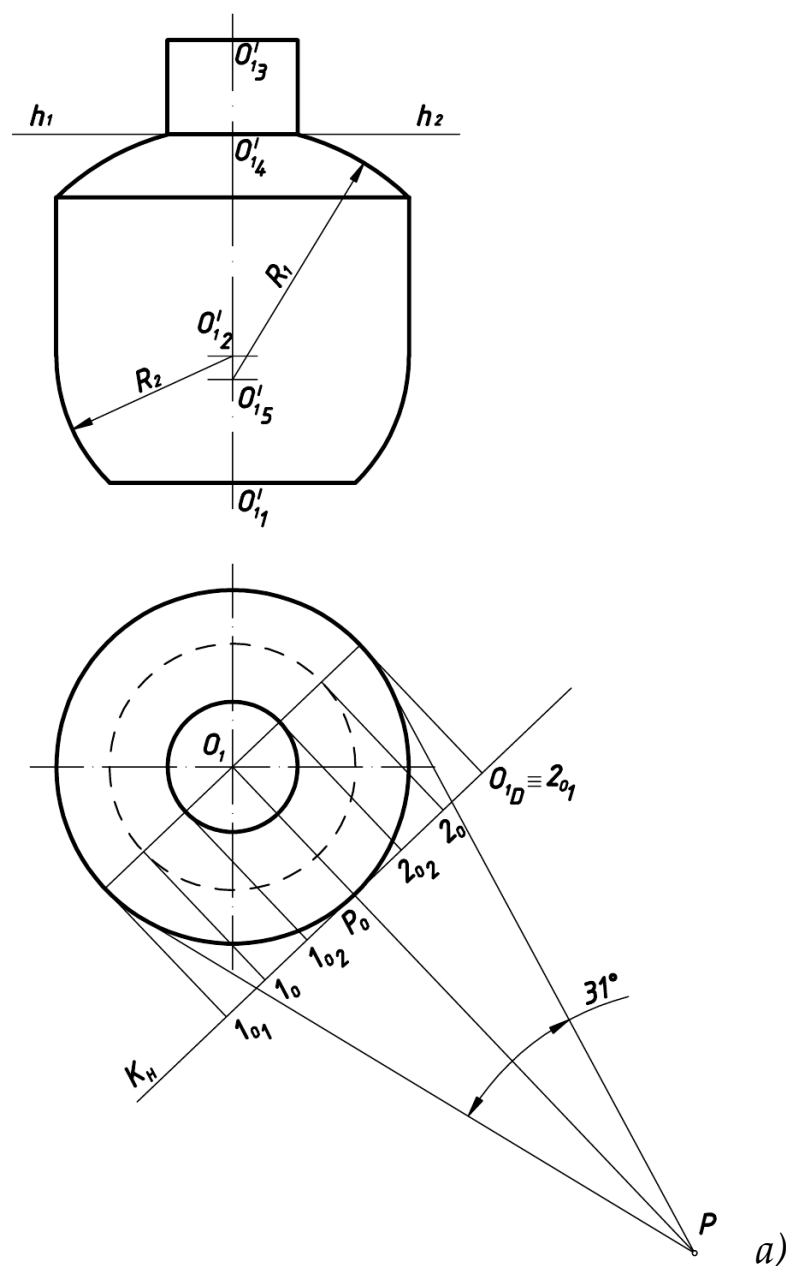
#### **4–GRAFIK ISH.**

##### **Grafik ish sharti:**

Geometrik sirtlardan tashkil topgan aylanish sirtining perspektivasini yasang.

##### **Grafik ishni bajarishga oid ko'rsatmalar.**

Bir nechta geometrik sirtlar yig'indisidan tashkil topgan aylanish sirtining perspektivasini yasash uchun, uning ortogonal proyeksiyasidan birinchi navbatda qanday geometrik sirtlardan tashkil topganligi va ularning chegarasi aniqlanadi. Chunki bu sirtning ma'lum bir oralig'i sferik sirtning bir qismidan boshqa bir oralig'i tsilindrik sirtdan yoki boshqa bir sirtdan iborat bo'lishi mumkin. Sirtning sferik qismini perspektivasi aylana yoyidan, tsilindrik qismi konturi paralel ikki to'g'ri chiziqdan iborat bo'ladi. Aylana yoyini chizish uchun uning markazi va yoyga oid bitta nuqta bo'lsa etarli, to'g'ri chiziqni chizish uchun esa uning ikkita nuqtasi bo'lsa etarli.



7.3-rasm

7.3-rasm, *a* da berilgan aylanish sirtining ostki asosi va markazi  $O_{12}$  nuqtada bo'lgan kesim oralig'i  $R_2$  radiusli sferik sirtning qismidan, markazlari  $O_{12}$  va  $O_{13}$  nuqtalarda bo'lgan kesimlar oralig'i tsilindrik sirtdan, markazlari  $O_{13}$  va  $O_{14}$  nuqtalarda bo'lgan kesimlar oralig'i  $R_1$  radiusli sferik sirtning qismidan va markazi  $O_{14}$  nuqtada bo'lgan kesim bilan ustki asos oralig'i tsilindrik sirtdan iborat.

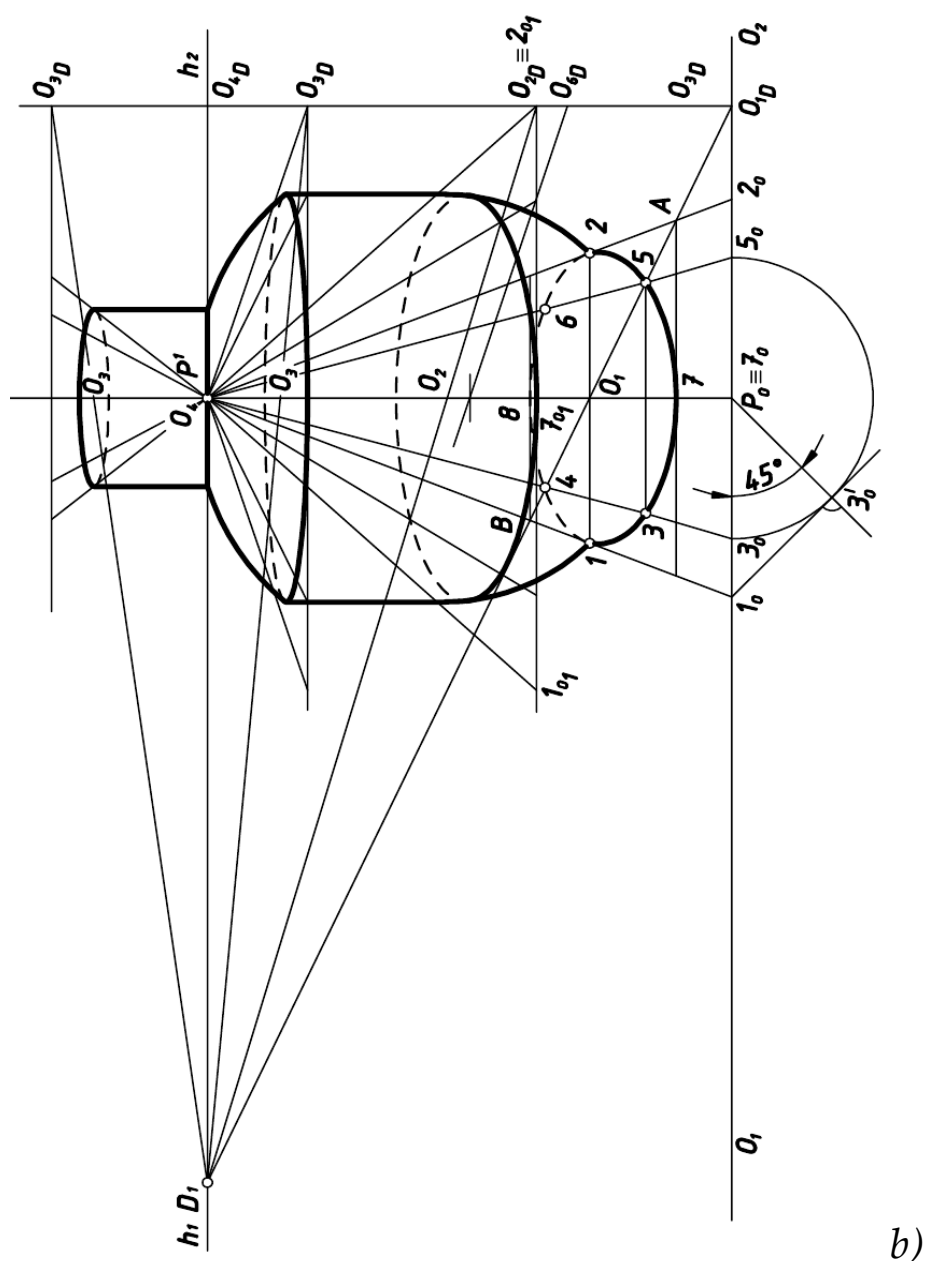
Ma'lumki, aylanish sirtining perspektivasini yasash uchun gorizontaal proyeksiyada uning qaysi tomoniga qog'ozning bo'sh

joyi bo'lsa o'sha tomonga urinma qilib kartinaning gorizontali izi  $K_H$  o'tkaziladi.  $O_1$  markazdan  $K_H$  ga perpendikular qilib  $O_1r_0$  to'g'ri chiziq chizib buning ustiga chetki nurlar orasidagi burchakni  $28^\circ$  qilib olib turish nuqtasi ( $r$ ) ni o'rnini belgilaymiz; aylanalarga urinma qilib  $K_H$  ga perpendikular chiziqlar chizib,  $K_H$  ning ustiga  $1_0, 2_0, 1_{01}, 2_{01}$  va  $1_{02}, 2_{02}$  nuqtalarni hosil qilamiz; frontal proyeksiyada gorizont chizig'i ( $h_1h_2$ )ni aylanish sirti balandligini teng uch bo'lakka bo'lib yuqoridagi uchdan bir qism oralig'idan (yuqoridagi tsilindrik qism bilan  $R_1$  radiusli sferik qism chegarasidan) o'tkazamiz.

Chizma qog'ozining pastrog'idan gorizontali to'g'ri chiziq chizib, bu chiziqni kartinani asosi ( $O_1O_2$ ) deb qabul qilamiz (7.3-rasm, b).

$O_1O_2$ ni ustiga  $r_0$  nuqtani o'rnini belgilab, bu nuqtadan vertikal to'g'ri chiziq chizib, uning ustiga gorizont chiziqning balandligini o'lchab qo'yib, bosh nuqta ( $r'$ ) topiladi. Bu nuqtadan  $O_1O_2$  ga parallel to'g'ri chiziq chizib, gorizont chizig'i ( $h_1h_2$ ) hosil qilinadi. Bosh nuqtadan chap tomonga bosh masofa ( $rr_0$ ) ni o'lchab qo'yib, distantсион nuqta ( $D_1$ ) topiladi.

Sirtning ostki asosini perspektivasini yasash uchun, kartinaning asosiga  $K_H$  ni ustidagi  $1_0, 2_0, O_{1D}$  nuqtalarni ko'chiramiz.  $1_0$  va  $r_0$  nuqtalardan kartinaning asosiga nisbatan  $45^\circ$  burchak ostida chiziqlar chizib, ularning o'zaro kesishish nuqtasi ( $3_0^1$ ) aniqlanadi.  $r_0$  nuqtani markaz qilib, kartinaning asosi bilan  $3_0$  va  $5_0$  nuqtalarda kesishguncha chap va o'ng tomonga  $r_0 3_0^1$  radiusli yoylar chiziladi.  $1_0, 3_0, 5_0, 2_0$  nuqtalar bilan bosh nuqta ( $r'$ ),  $O_{1D}$  nuqta bilan distantсион nuqta ( $D_1$ ) to'g'ri chiziqlar bilan tutashtiriladi.



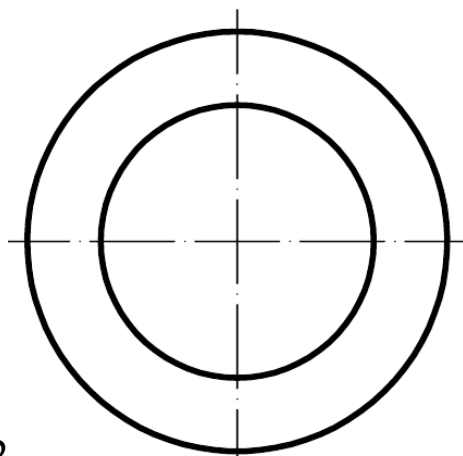
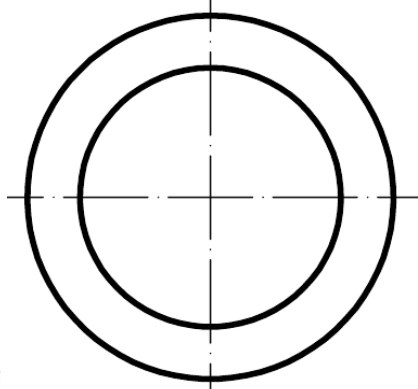
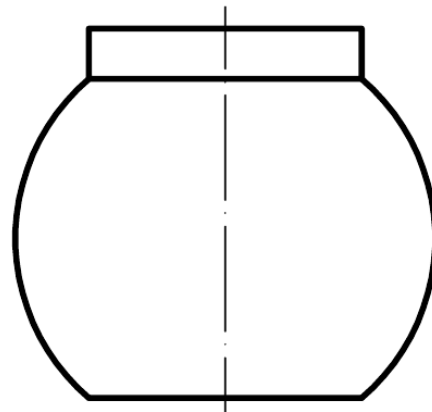
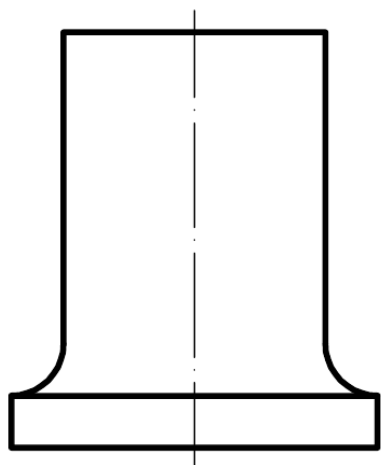
7.3-rasm

$D_1O_{1D}$  bilan  $r_0r'$  kesishib, sirt ostki asosi markazi ( $O_{11}$ ) ning perspektivasi  $O_1$  nuqtani hosil qiladi. Bu nuqtadan gorizontaal to'g'ri chiziq chizamiz. Bu to'g'ri chiziq  $1_0r'$  va  $2_0r'$  to'g'ri chiziqlar bilan 1 va 2 nuqtalarda kesishadi.  $D_1O_{1D}$  chiziq bilan  $1_0r'$  va  $2_0r'$  to'g'ri chiziqlar A va B nuqtalarda kesishadi. A nuqtadan chap tomonga, B nuqtadan o'ng tomonga  $r_0r^1$  to'g'ri chiziq bilan kesishguncha gorizontaal chiziqlar chizib 7 va 8 nuqtalarni hosil qilamiz.  $D_1O_{1D}$  to'g'ri chiziq  $3_0r^1$  va  $5_0r^1$  chiziqlar bilan kesishib 4 va 5 nuqtalarni hosil qiladi. 4 nuqtadan o'ng tomonga, 5 nuqtadan

chap tomonga chizilgan chiziqlar bilan  $5_{or'}$  va  $3_{or'}$  chiziqlar mos ravishda kesishib, 6 va 3 nuqtalarni hosil qiladi. Bu topilgan  $1,2,3,\dots,8$  nuqtalarni lekalo yordamida tutashtirib, aylananing perspektivasi hosil qilinadi.

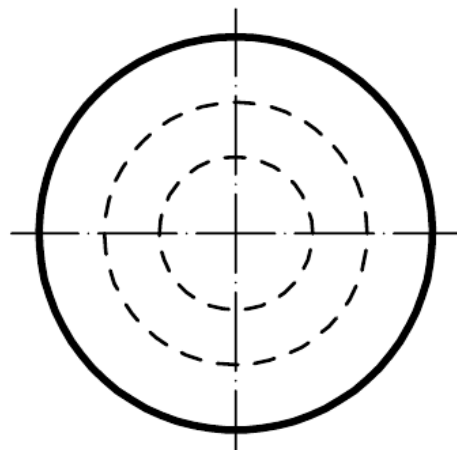
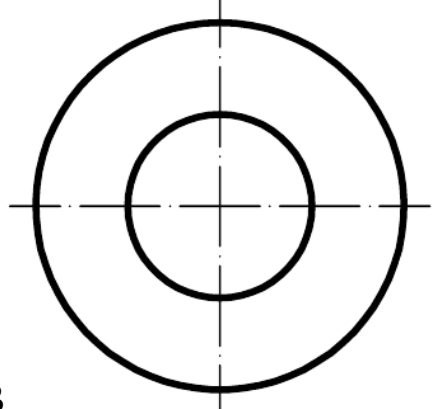
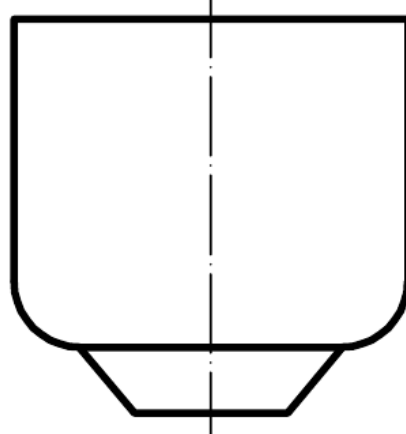
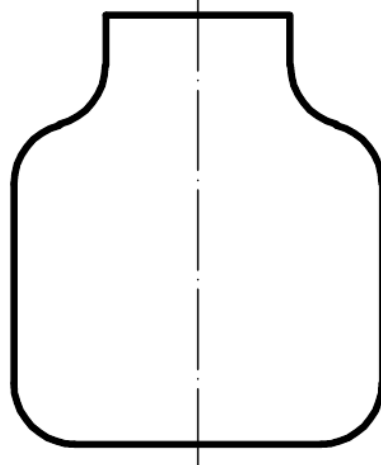
Aylanani sirtining markazi  $O_{12}$  da bo'lgan kesimini perspektivasini yasash uchun  $O_{1D}$  nuqtadan chizilgan vertikal chiziq ustiga  $O_{12}$  nuqtani balandligi  $(O_1, O_{12})$  ni o'lchab qo'yib,  $O_{2r}$  nuqtani hosil qilamiz  $O_{10}$   $O_{2D}=O_1O/1/2$  gorizont to'g'ri chiziq chizamiz. Bu chiziq bilan  $r_{or'}$  to'g'ri chiziq  $7_{o1}$  nuqtada kesishadi. Bu nuqtadan gorizont chiziq ustiga  $O_1$  markazli kesim diametrini yarmini chap tomonga, yarmini o'ng tomonga o'lchab qo'yib  $1_{o1}$  va  $2_{o1}$  nuqtalarni hosil qilamiz. Markazi  $O_{12}$  da bo'lgan aylana kesim konturini perspektivasini yasash uchun qolgan keyingi ishlar, sirt asosining perspektivasini yasash kabi bo'ladi. Ustki asosini va markazi  $O_{13}$  nuqtada bo'lgan kesimning perspektivasi ham markazi  $O_{12}$  da bo'lgan kesimning perspektivasini yasash kabi yasaladi. Markazi  $O_{14}$  da bo'lgan kesim gorizont chizig'ida bo'lgani uchun, uning perspektivasi to'g'ri chiziq kesmasi ko'rinishida bo'ladi.

Chizilgan ellipslarni tegishli tartibda tutashtiramiz, ya'ni aylanish sirtining ostki asosida  $O_{12}$  markazli kesimgacha bo'lgan qismi aylana yoyi, markazi  $O_{12}$  va  $O_{13}$  bo'lgan kesimlarining oralig'i to'g'ri chiziq. Markazi  $O_{13}$  va  $O_{14}$  bo'lgan kesimlar oralig'i markazi  $O_6$  da bo'lgan aylana yoyi,  $O_{14}$  markazli kesimdan ustki asosigacha bo'lgan qismi to'g'ri chiziq bo'ladi.



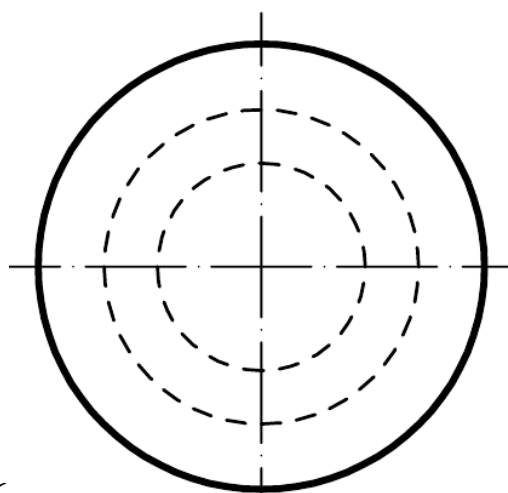
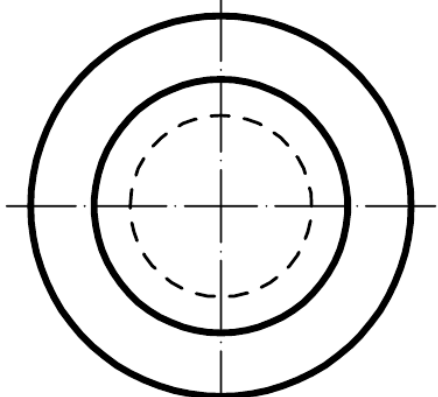
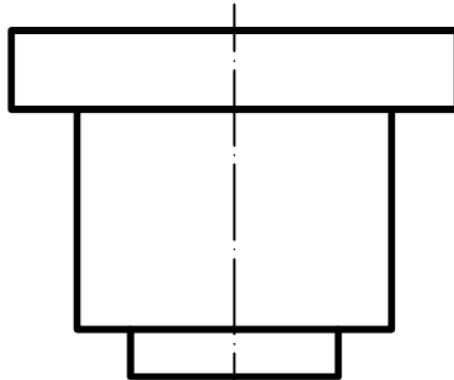
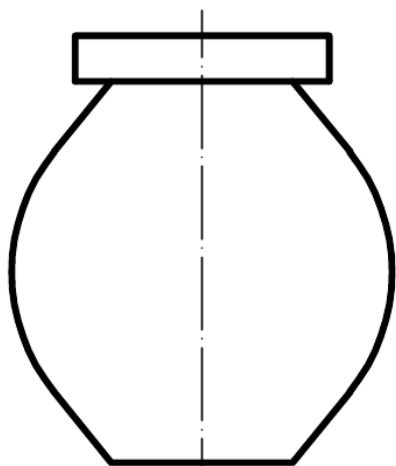
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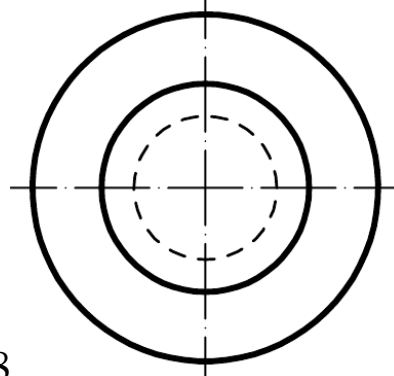
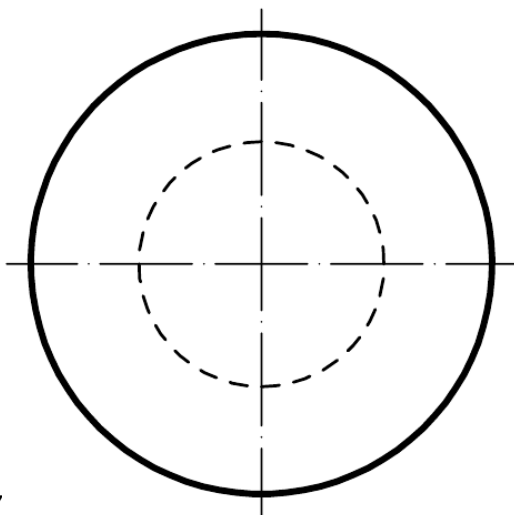
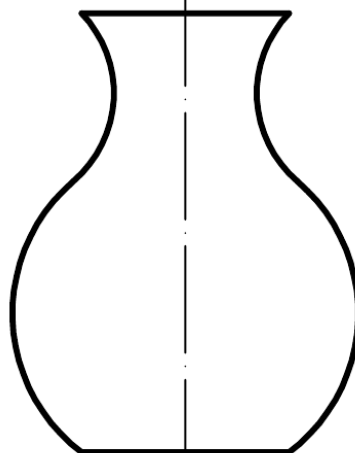
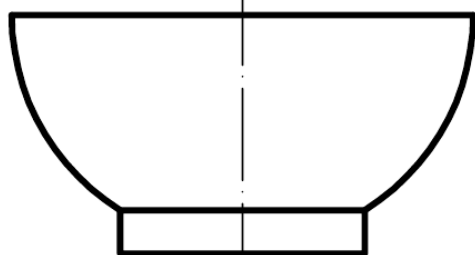
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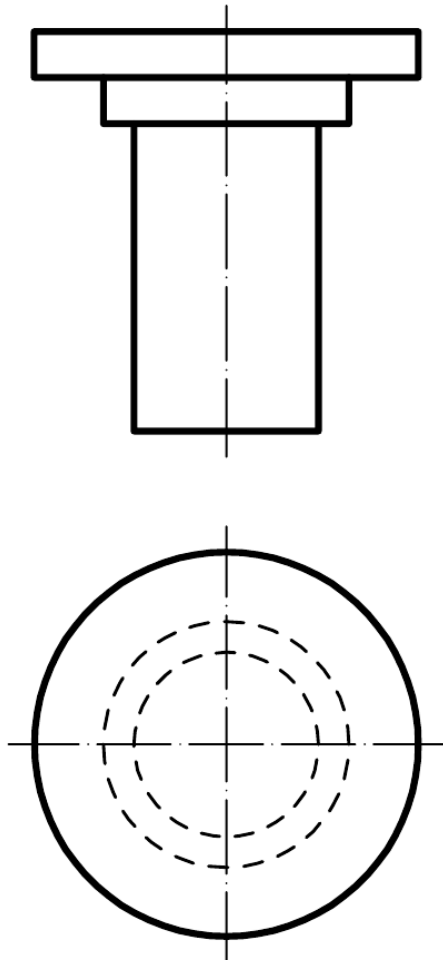
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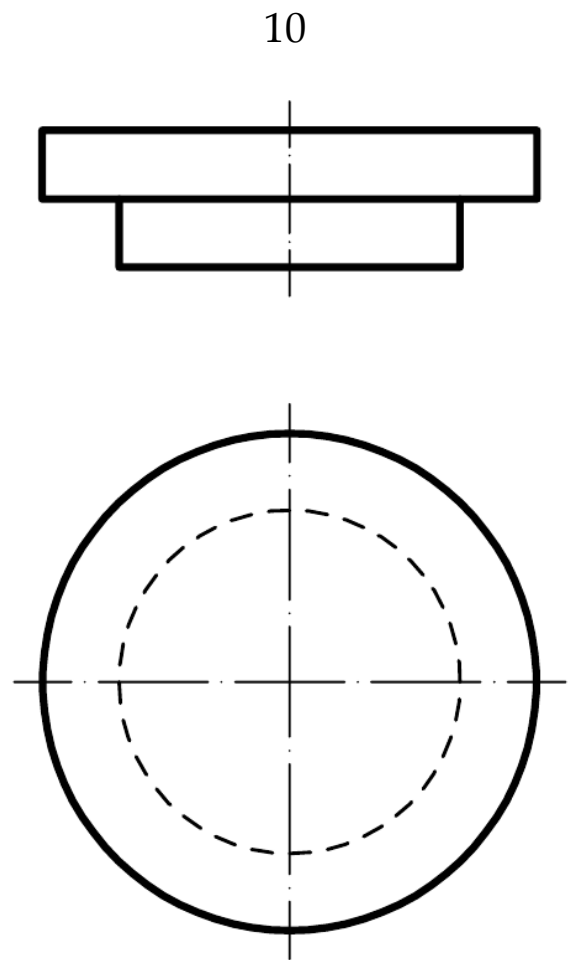


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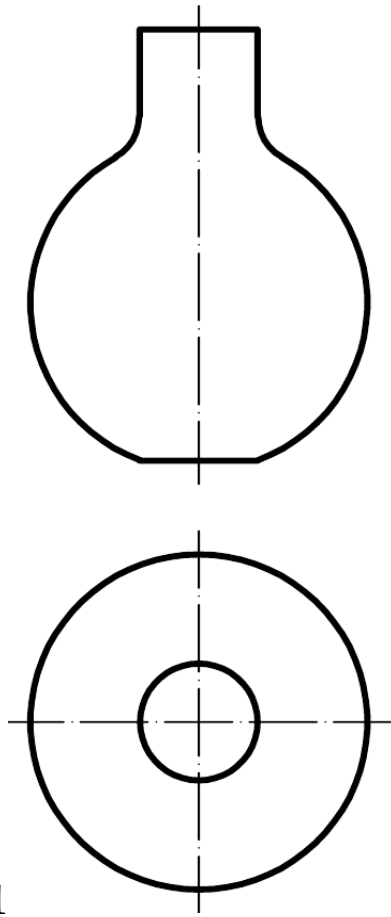


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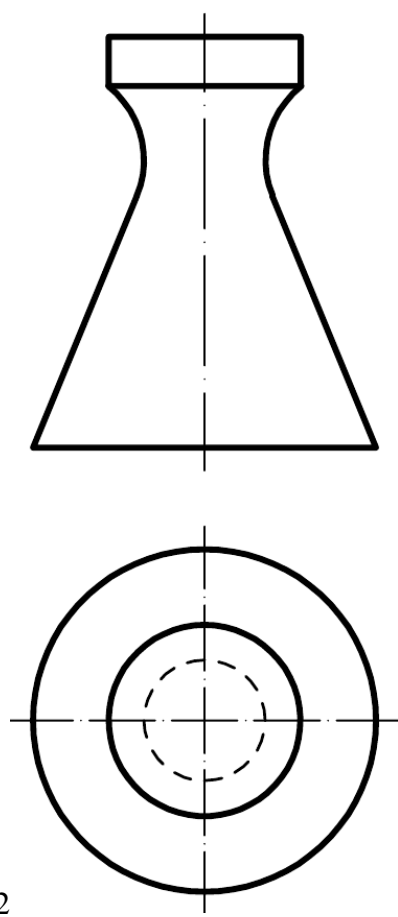


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