

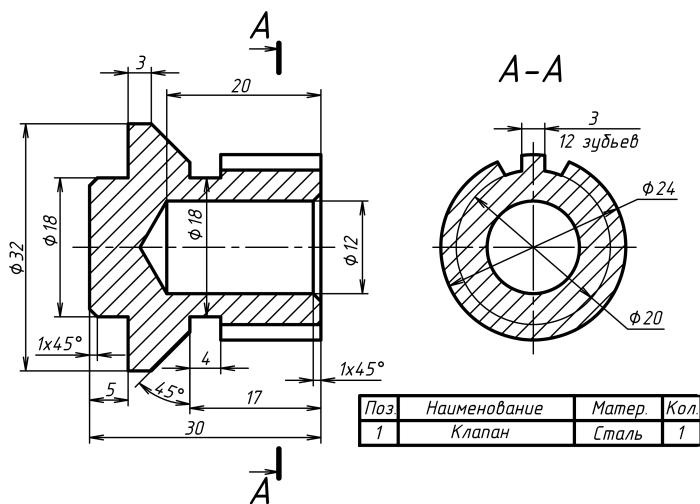
«Introduction to Mechanical Engineering»

Final Exam

CAD modeling

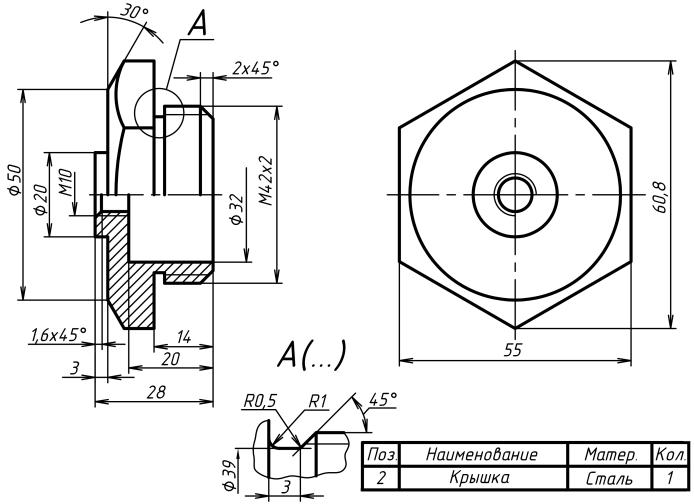
Variant: 9

1. Make all CAD models from the blueprints, which provided below (figs. 1 and 2). (15 score)
 2. Make an assembly. Description is on the figure (fig. 3). (5 score)
Decimal number — <3 first surname letters>2023.<variant>.000 (Bulichev → BUL2023.09.000)
 3. Make the same blueprints (without dimensions), based on your CAD models. (3 extra score)
 4. Provide a BOM for your assembly. It should contain name, decimal number, material, amount of details. (2 extra score)



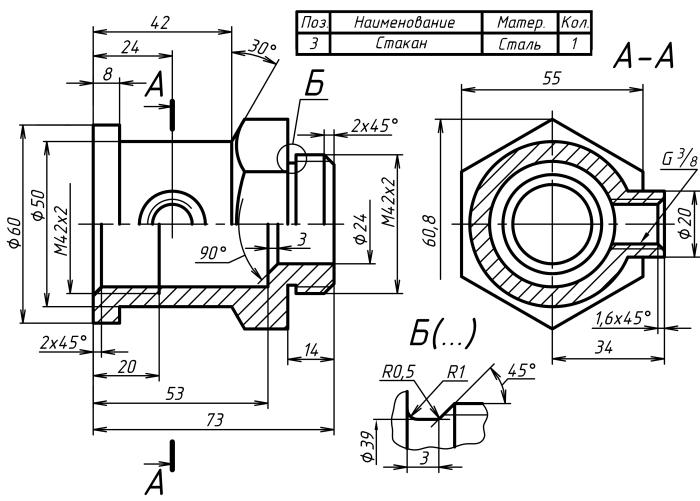
(a) Part 1

оз.	Наименование	Матер.	Кол.
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(b) Part 2

Поз.	Наименование	Матер.	Кол.
2	Крышка	Сталь	1



(c) Part 3

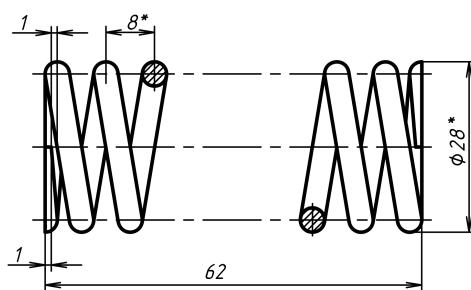
Направление навивки - правое

7

$$n_1 = 8,$$

$$D_c = 19,2 \text{ MM}$$

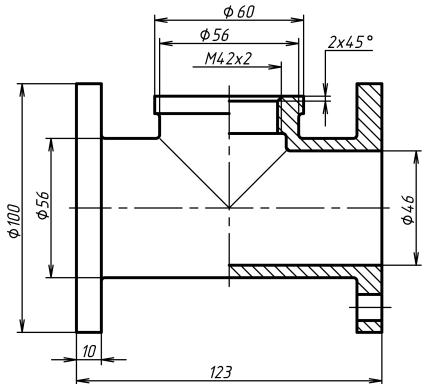
*Размер для справок.



(d) Part 4

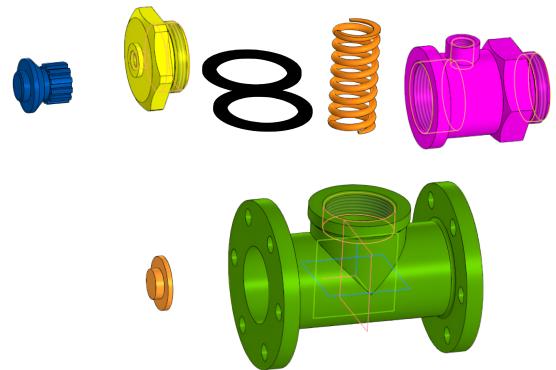
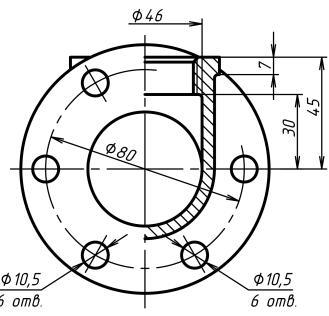
Поз.	Наименование	Матер.	Кол.
4	Пружина	Проболока 4	1

Figure 1: Task 1

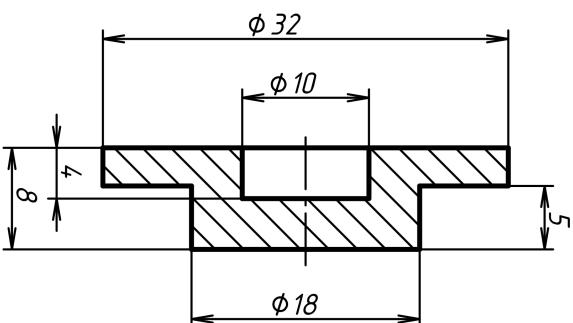


Поз.	Наименование	Матер.	Кол.
5	Корпус	Сталь	1
Клапан предохранительный №6			

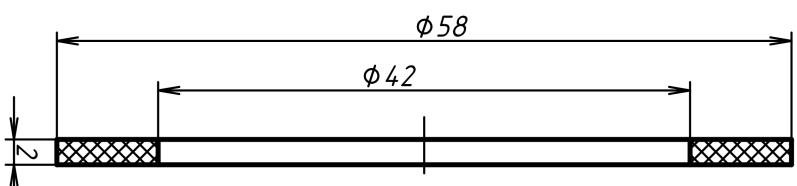
(a) Part 5



(b) How it is look like in 3D



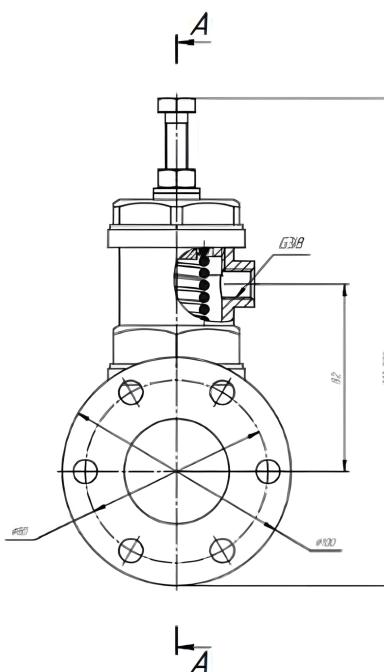
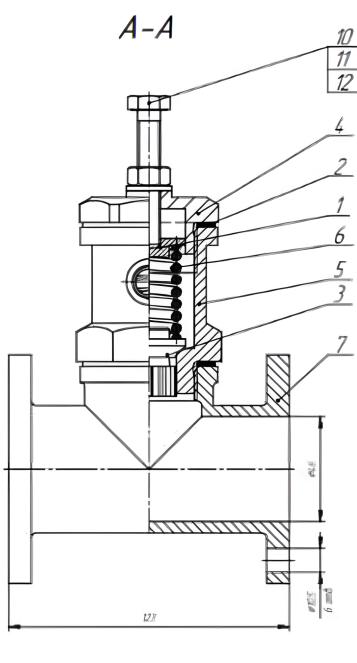
Поз.	Наименование	Матер.	Кол.
6	Тарель	Сталь	1



Поз.	Наименование	Матер.	Кол.
7	Прокладка	Резина	2

(c) Parts 6 and 7

Figure 2: Task 1



Документация		
№	Наименование	Сборочный чертеж
1	БИГЕXXXXXX.001	Сборочный чертеж
2	БИГЕXXXXXX.002	
3	БИГЕXXXXXX.003	
4	БИГЕXXXXXX.004	
5	БИГЕXXXXXX.005	
6	БИГЕXXXXXX.006	
7	БИГЕXXXXXX.007	

Детали		
1	БИГЕXXXXXX.001	Гарель
2	БИГЕXXXXXX.002	Прокладка
3	БИГЕXXXXXX.003	Клапан
4	БИГЕXXXXXX.004	Крышка
5	БИГЕXXXXXX.005	Стакан
6	БИГЕXXXXXX.006	Пружина
7	БИГЕXXXXXX.007	Корпус

Стандартные изделия		
10	Гайка М10-бН ГОСТ 5927-70	1
11	Шайба С1037 ГОСТ 11371-78	1
12	Винт с шестигранной головкой ГОСТ Р ИСО 4017-М10 х 60	1

Figure 3: Task 2

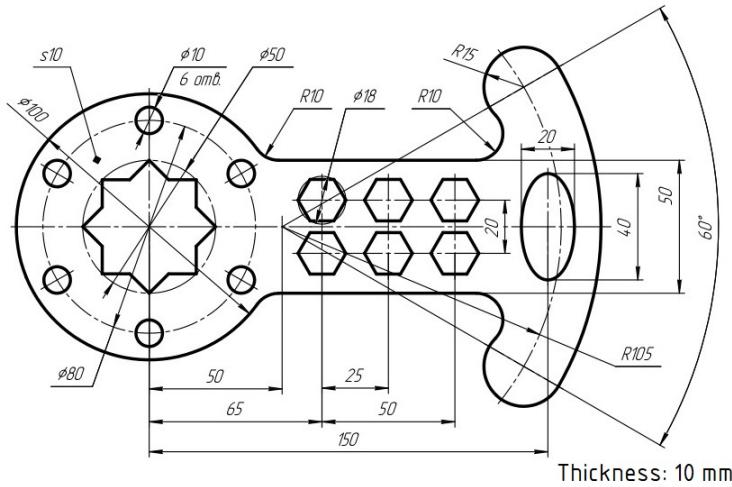
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Final Exam

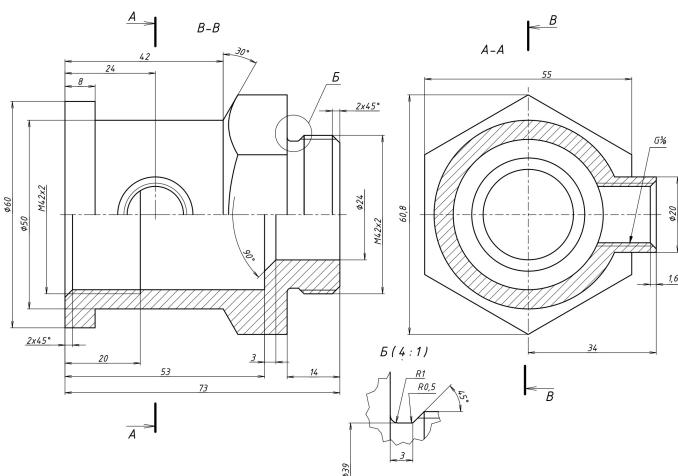
CAD modeling

Variant: 1

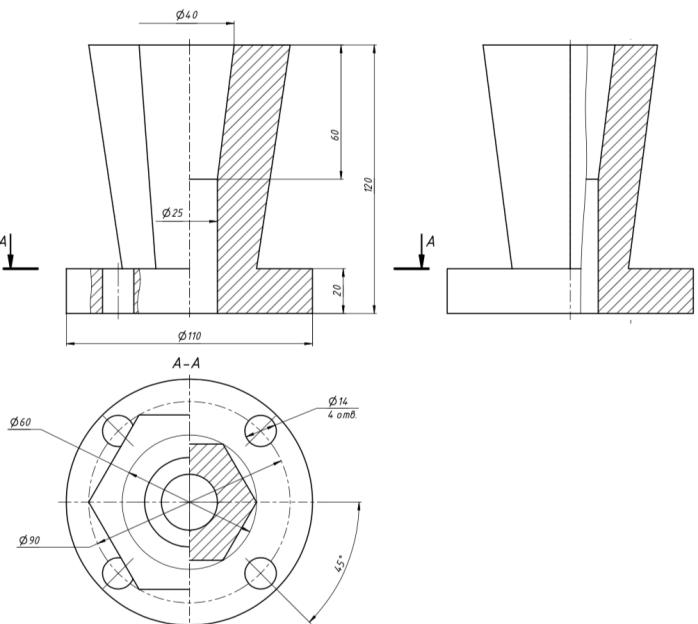
1. Make all CAD models from the blueprints, which provided below (figs. 1 and 2). (15 score)
2. Make an assembly. Description is on the figure (fig. 3). (5 score)
Decimal number — <3 first surname letters>2023.<variant>.000 (Bulichev → BUL2023.01.000)
3. Make the same blueprints (without dimensions), based on your CAD models. (3 extra score)
4. Provide a BOM for your assembly. It should contain name, decimal number, amount of details. (2 extra score)



(a) Part 1

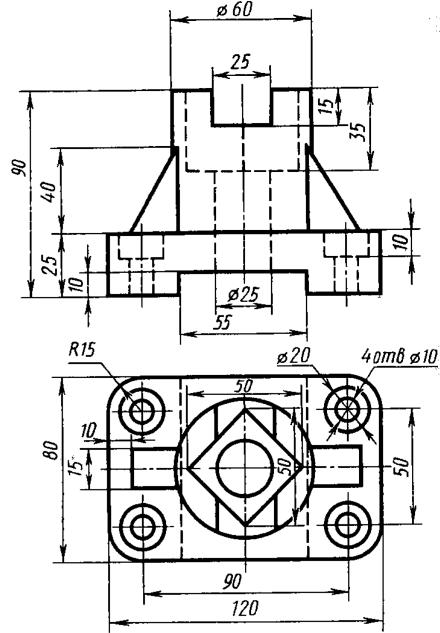


(b) Part 2

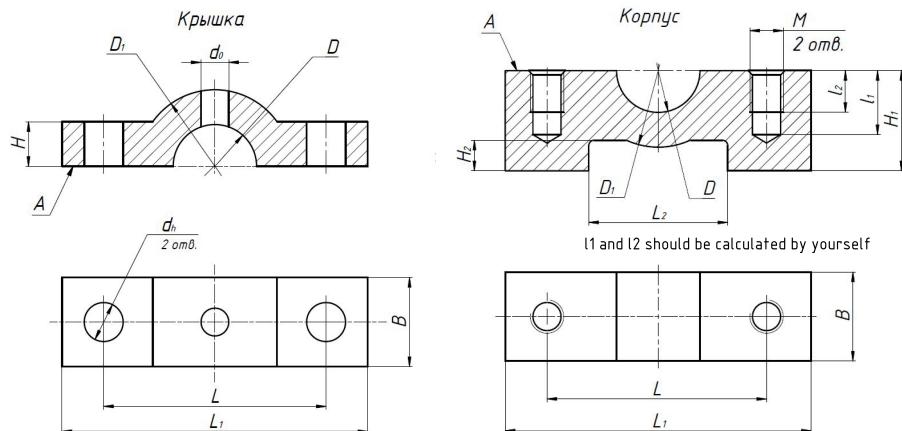


(c) Part 3

Figure 1: Task 1



(a) Part 4

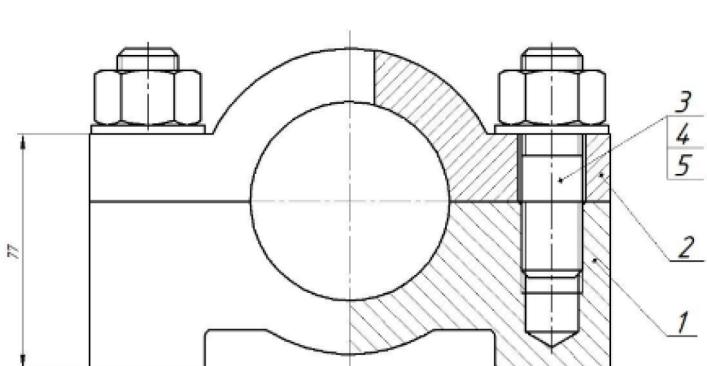


Неуказанные литьевые радиусы 3...5 мм.

Шпилька по ГОСТ 22036-76	dh	$d0$	D	$D1$	B	H	$H1$	$H2$	L	$L1$	$L2$
M20x1	22	16	65	100	50	22	55	13	132	170	95

(b) Parts 5 and 6

Figure 2: Task 1



Детали	
1 БИГЕXXXXXX.006	Корпус
2 БИГЕXXXXXX.007	Крышка
<u>Стандартные изделия</u>	
3	Шайба А2037 ГОСТ 11371-78
4	Шпилька М20-6gх50 ГОСТ 22034-76
5	Гайка шестигранная нормальная ГОСТ ISO 4032-М20

Figure 3: Task 2

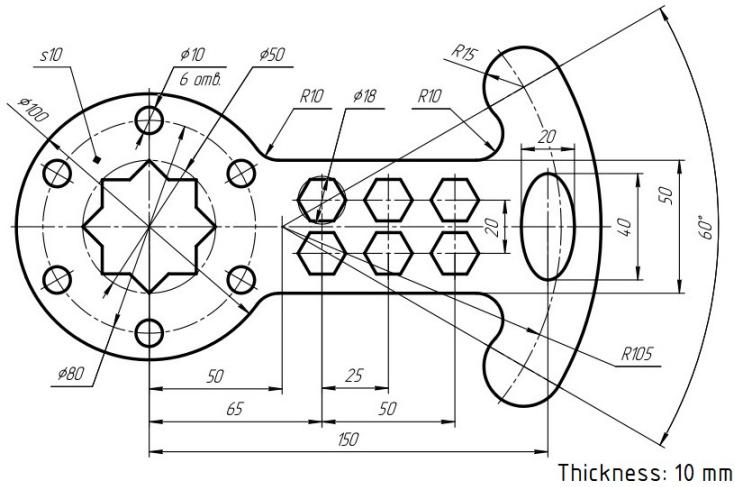
«Introduction to Mechanical Engineering»

Final Exam

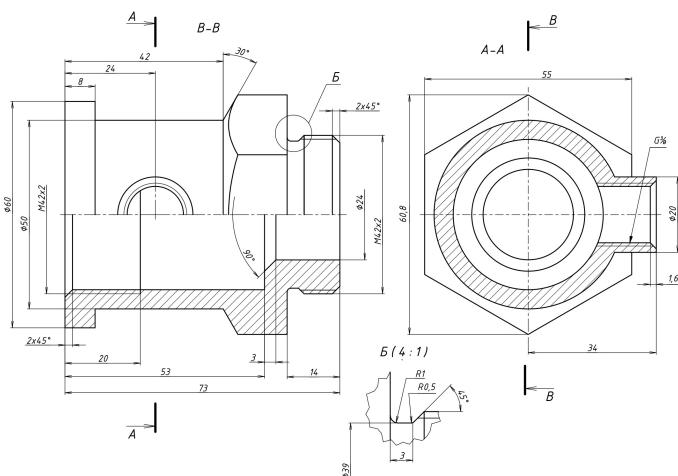
CAD modeling

Variant: 2

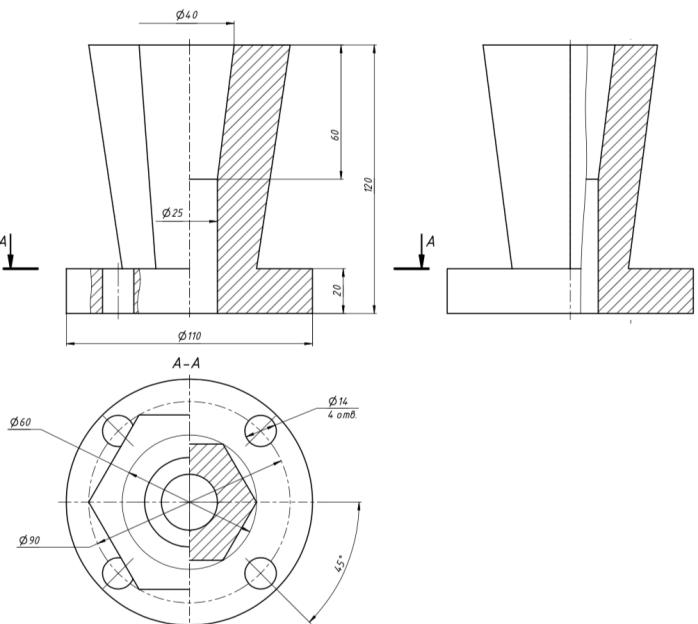
1. Make all CAD models from the blueprints, which provided below (figs. 1 and 2). (15 score)
2. Make an assembly. Description is on the figure (fig. 3). (5 score)
Decimal number — <3 first surname letters>2023.<variant>.000 (Bulichev → BUL2023.02.000)
3. Make the same blueprints (without dimensions), based on your CAD models. (3 extra score)
4. Provide a BOM for your assembly. It should contain name, decimal number, amount of details. (2 extra score)



(a) Part 1

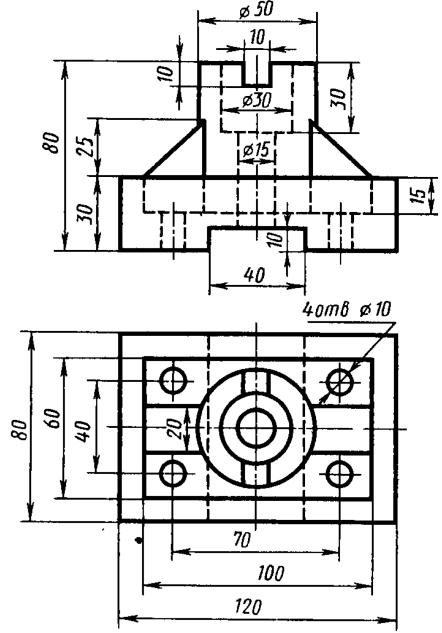


(b) Part 2

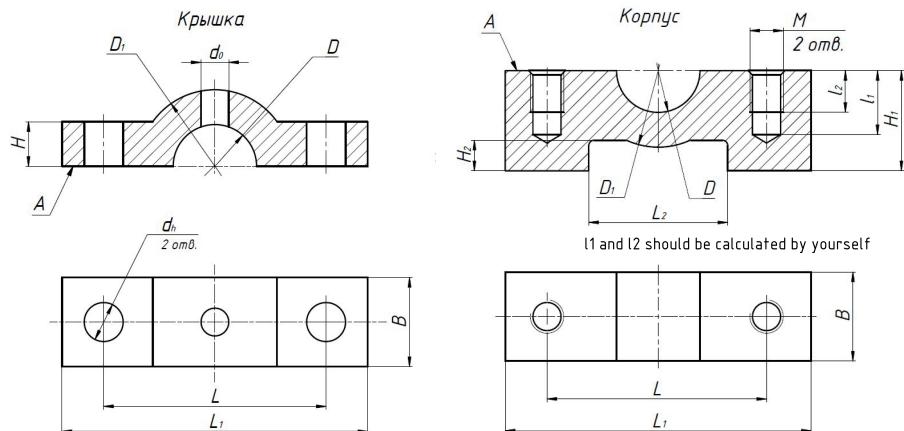


(c) Part 3

Figure 1: Task 1



(a) Part 4

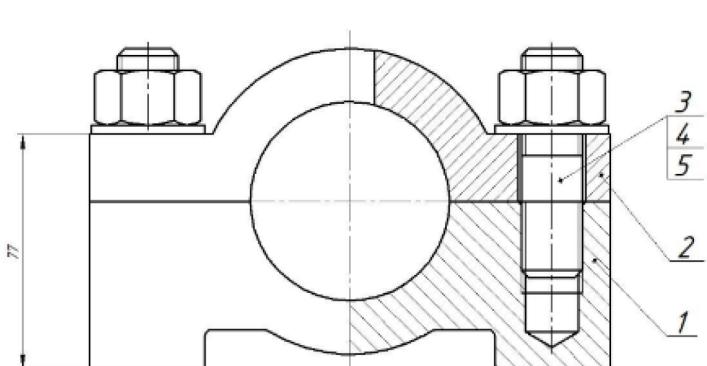


Неуказанные литьевые радиусы 3...5 мм.

Шпилька по ГОСТ 22036-76	d_h	d_0	D	D_1	B	H	H_1	H_2	L	L_1	L_2
M20x1	22	16	65	100	50	22	55	13	132	170	95

(b) Parts 5 and 6

Figure 2: Task 1



Детали	
1 БИГЕXXXXXX.006	Корпус
2 БИГЕXXXXXX.007	Крышка
<u>Стандартные изделия</u>	
3	Шайба А2037 ГОСТ 11371-78
4	Шпилька М20-6gх50 ГОСТ 22034-76
5	Гайка шестигранная нормальная ГОСТ ISO 4032-М20

Figure 3: Task 2

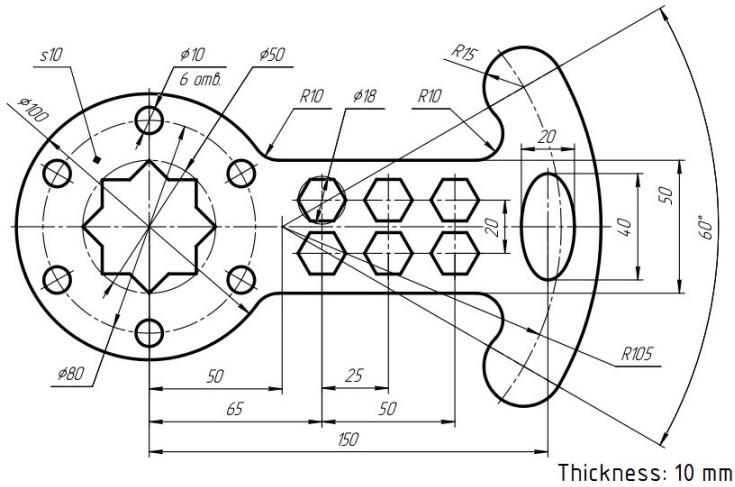
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Final Exam

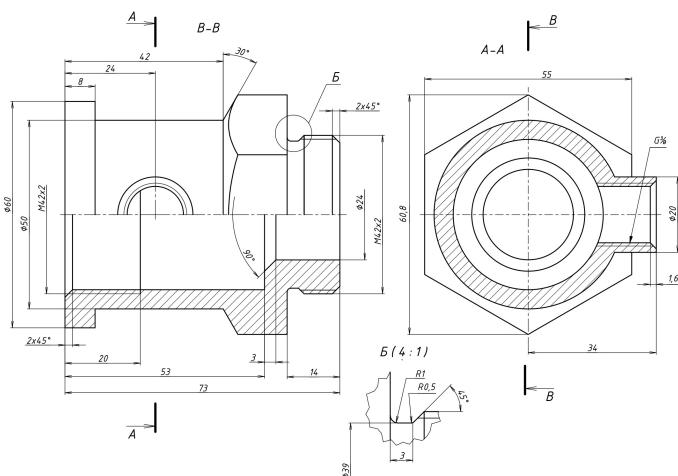
CAD modeling

Variant: 3

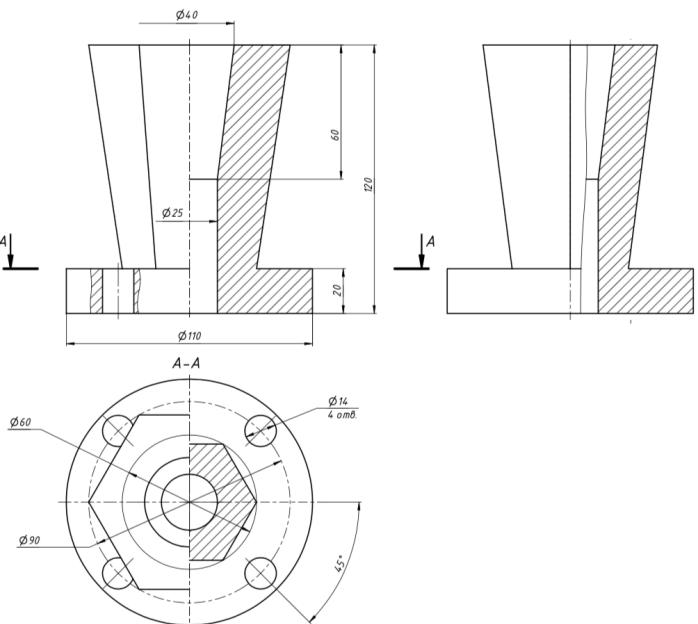
1. Make all CAD models from the blueprints, which provided below (figs. 1 and 2). (15 score)
2. Make an assembly. Description is on the figure (fig. 3). (5 score)
Decimal number — <3 first surname letters>2023.<variant>.000 (Bulichev → BUL2023.03.000)
3. Make the same blueprints (without dimensions), based on your CAD models. (3 extra score)
4. Provide a BOM for your assembly. It should contain name, decimal number, amount of details. (2 extra score)



(a) Part 1

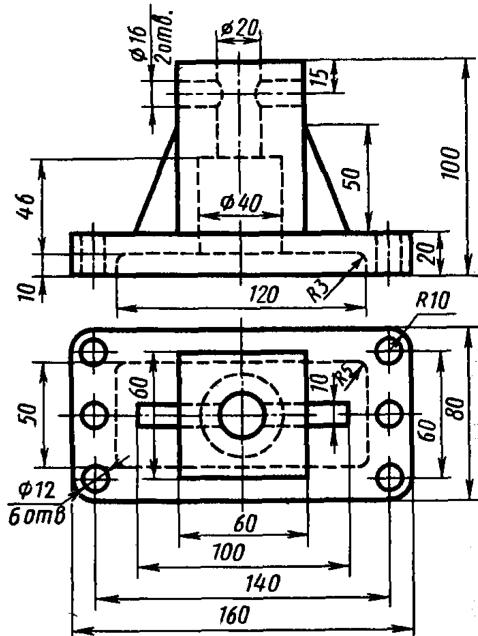


(b) Part 2

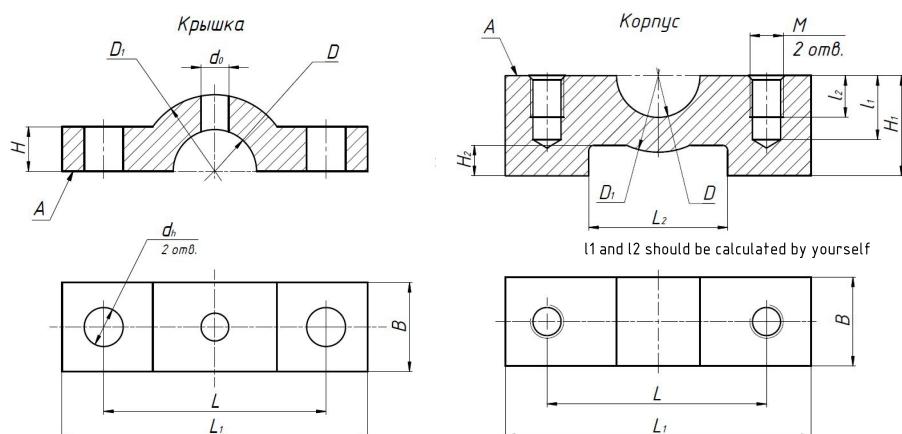


(c) Part 3

Figure 1: Task 1



(a) Part 4

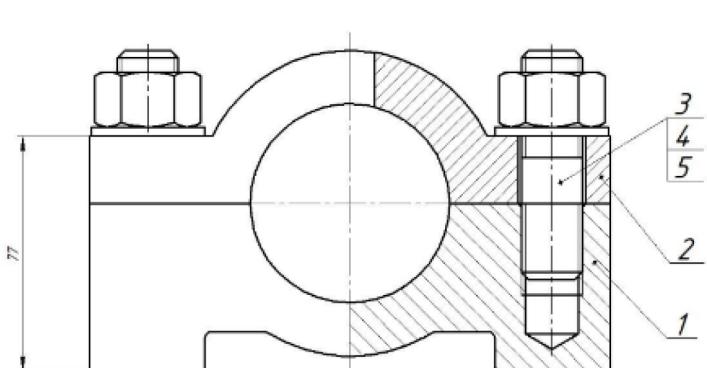


Неуказанные литьевые радиусы 3...5 мм.

Шпилька по ГОСТ 22036-76	d_h	d_0	D	D_1	B	H	H_1	H_2	L	L_1	L_2
M20x1	22	16	65	100	50	22	55	13	132	170	95

(b) Parts 5 and 6

Figure 2: Task 1



Детали	
1 БИГЕXXXXXX.006	Корпус
2 БИГЕXXXXXX.007	Крышка
<u>Стандартные изделия</u>	
3	Шайба А2037 ГОСТ 11371-78
4	Шпилька М20-6gх50 ГОСТ 22034-76
5	Гайка шестигранная нормальная ГОСТ ISO 4032-М20

Figure 3: Task 2

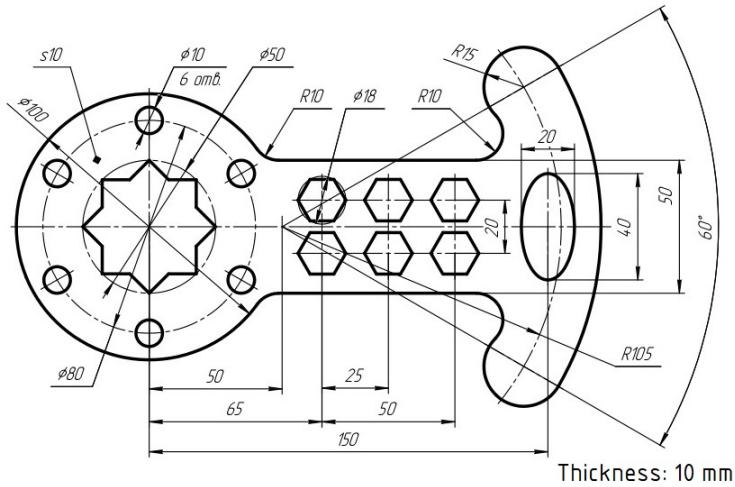
«Introduction to Mechanical Engineering»

Final Exam

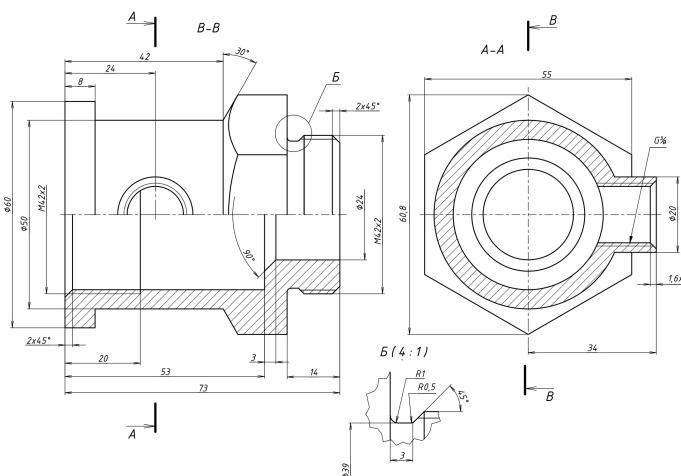
CAD modeling

Variant: 4

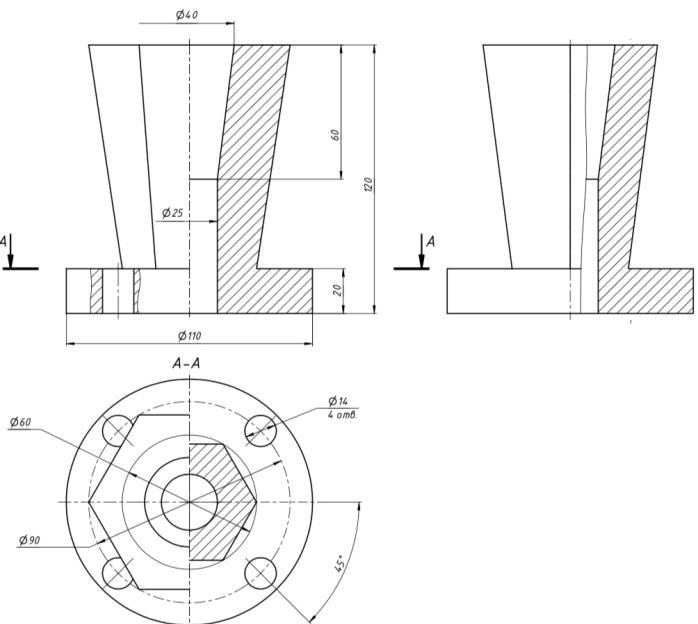
1. Make all CAD models from the blueprints, which provided below (figs. 1 and 2). (15 score)
2. Make an assembly. Description is on the figure (fig. 3). (5 score)
Decimal number — <3 first surname letters>2023.<variant>.000 (Bulichev → BUL2023.04.000)
3. Make the same blueprints (without dimensions), based on your CAD models. (3 extra score)
4. Provide a BOM for your assembly. It should contain name, decimal number, amount of details. (2 extra score)



(a) Part 1

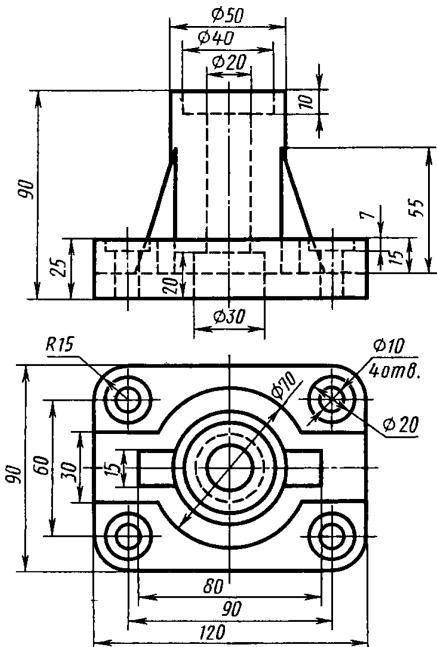


(b) Part 2

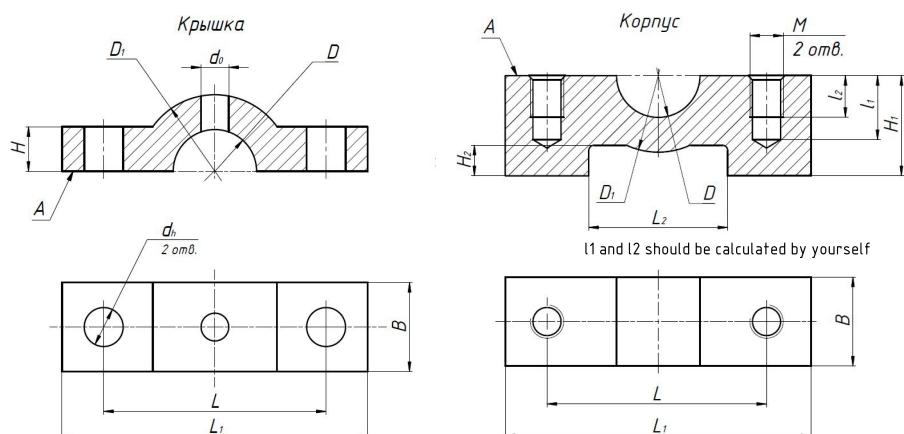


(c) Part 3

Figure 1: Task 1



(a) Part 4

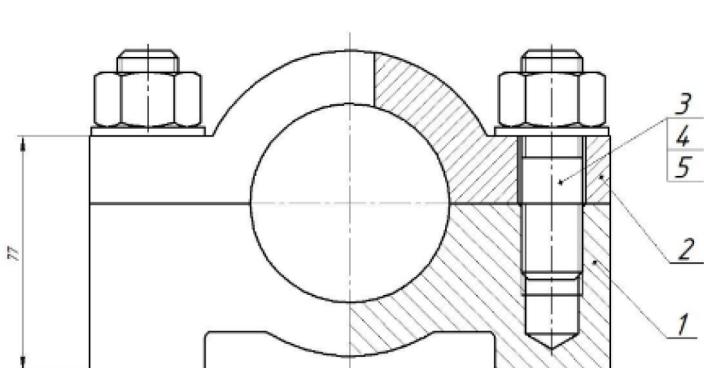


Неуказанные литьевые радиусы 3...5 мм.

Шпилька по ГОСТ 22036-76	d_h	d_0	D	D_1	B	H	H_1	H_2	L	L_1	L_2
M20x1	22	16	65	100	50	22	55	13	132	170	95

(b) Parts 5 and 6

Figure 2: Task 1



Детали	
1	БИГЕXXXXXX.006
2	БИГЕXXXXXX.007
<u>Стандартные изделия</u>	
3	Шайба А2037 ГОСТ 11371-78
4	Шпилька М20-6gх50 ГОСТ 22034-76
5	Гайка шестигранная нормальная ГОСТ ISO 4032-М20

Figure 3: Task 2

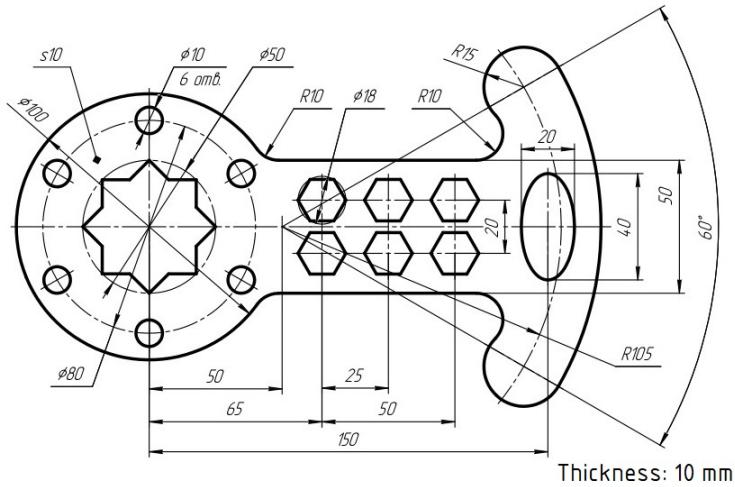
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Final Exam

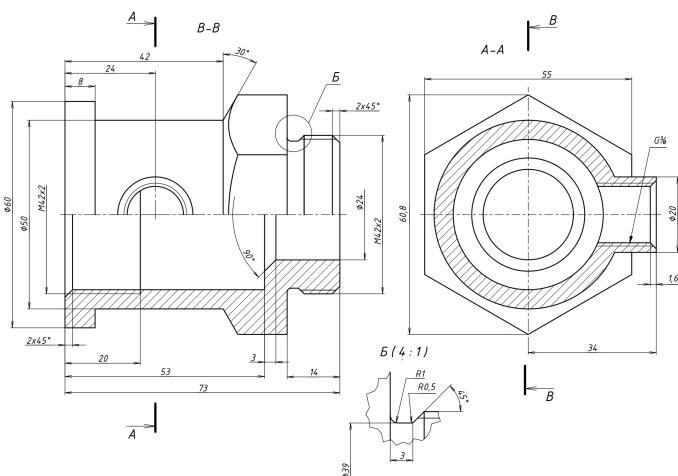
CAD modeling

Variant: 5

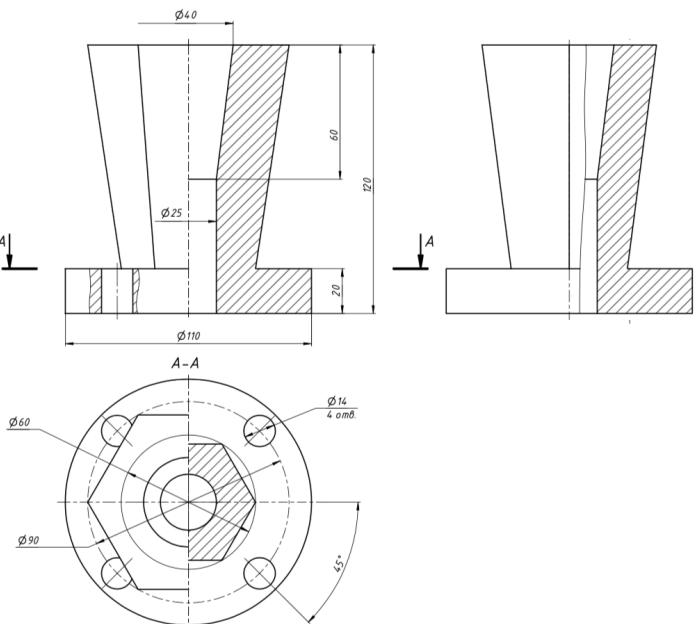
1. Make all CAD models from the blueprints, which provided below (figs. 1 and 2). (15 score)
2. Make an assembly. Description is on the figure (fig. 3). (5 score)
Decimal number — <3 first surname letters>2023.<variant>.000 (Bulichev → BUL2023.05.000)
3. Make the same blueprints (without dimensions), based on your CAD models. (3 extra score)
4. Provide a BOM for your assembly. It should contain name, decimal number, amount of details. (2 extra score)



(a) Part 1

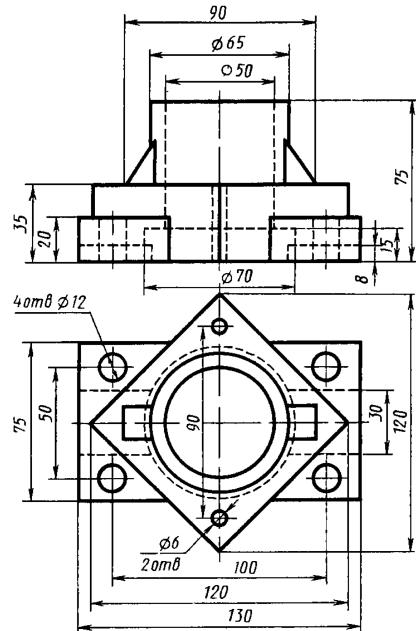


(b) Part 2

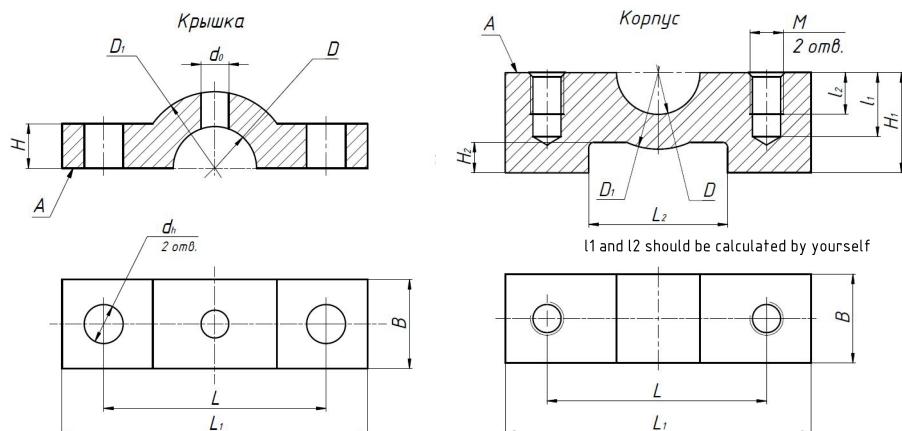


(c) Part 3

Figure 1: Task 1



(a) Part 4

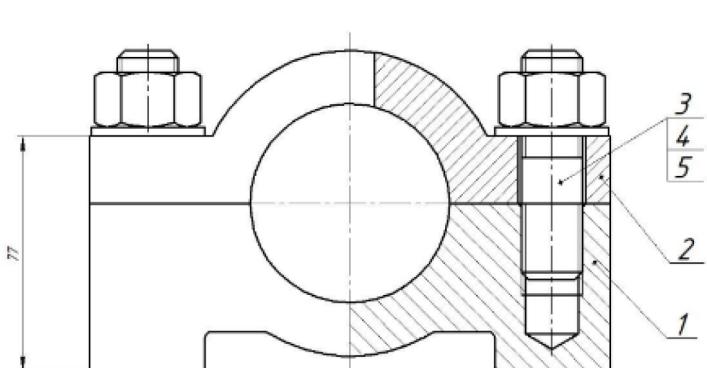


Неуказанные литьевые радиусы 3...5 мм.

Шпилька по ГОСТ 22036-76	dh	$d0$	D	$D1$	B	H	$H1$	$H2$	L	$L1$	$L2$
M20x1	22	16	65	100	50	22	55	13	132	170	95

(b) Parts 5 and 6

Figure 2: Task 1



Детали	
1 БИГЕXXXXXX.006	Корпус
2 БИГЕXXXXXX.007	Крышка
<u>Стандартные изделия</u>	
3	Шайба А2037 ГОСТ 11371-78
4	Шпилька М20-6gх50 ГОСТ 22034-76
5	Гайка шестигранная нормальная ГОСТ ISO 4032-М20

Figure 3: Task 2

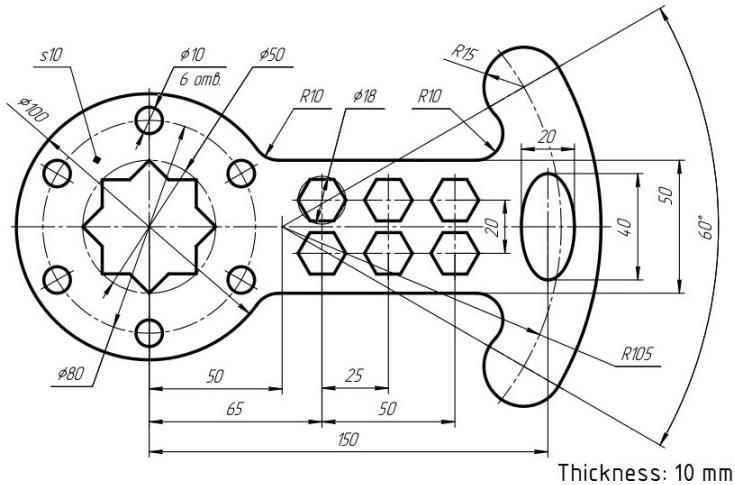
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Final Exam

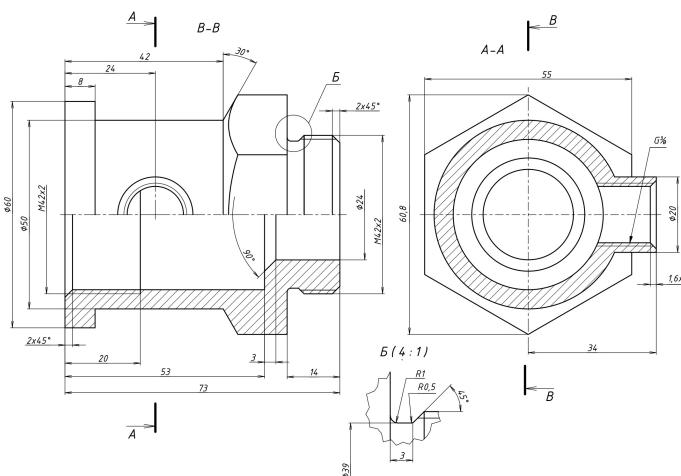
CAD modeling

Variant: 6

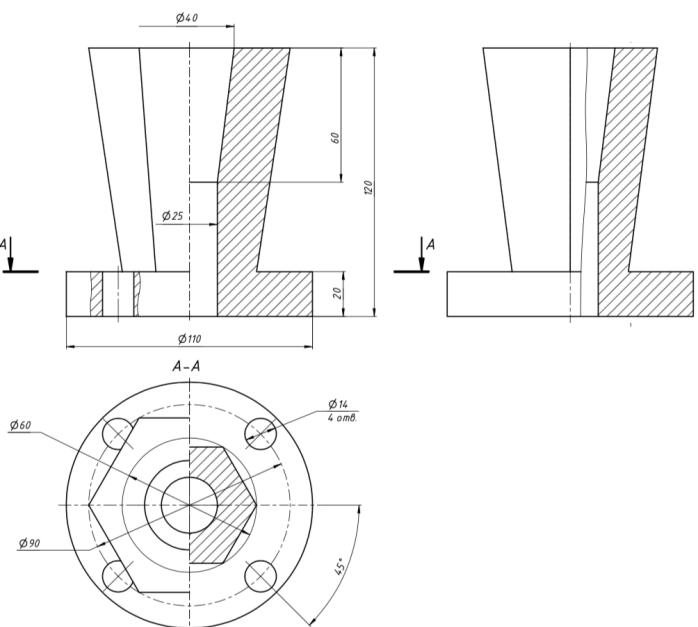
1. Make all CAD models from the blueprints, which provided below (figs. 1 and 2). (15 score)
2. Make an assembly. Description is on the figure (fig. 3). (5 score)
Decimal number — <3 first surname letters>2023.<variant>.000 (Bulichev → BUL2023.06.000)
3. Make the same blueprints (without dimensions), based on your CAD models. (3 extra score)
4. Provide a BOM for your assembly. It should contain name, decimal number, amount of details. (2 extra score)



(a) Part 1

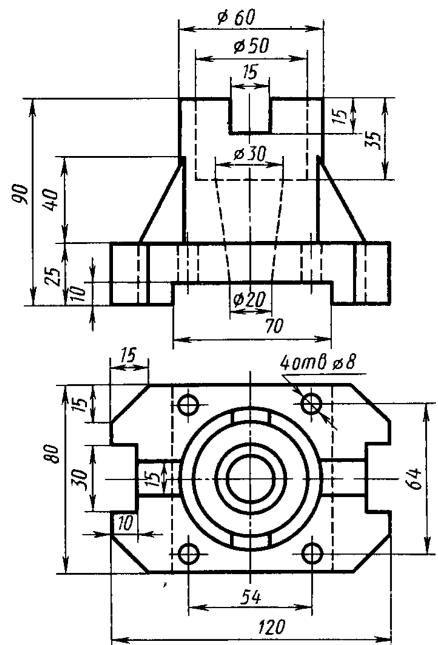


(b) Part 2

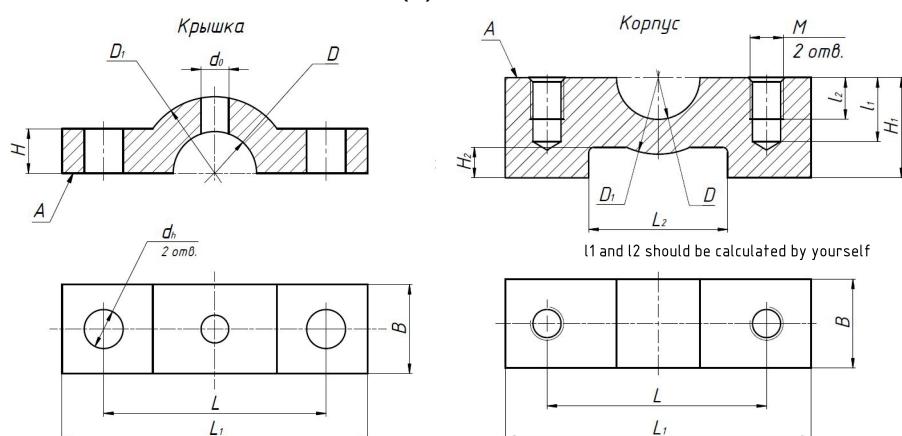


(c) Part 3

Figure 1: Task 1



(a) Part 4

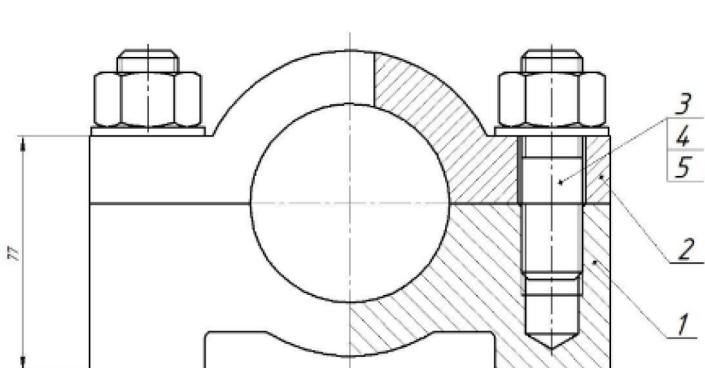


Неуказанные литьевые радиусы 3...5 мм.

Шпилька по ГОСТ 22036-76	dh	$d0$	D	D_1	B	H	H_1	H_2	L	L_1	L_2
M20x1	22	16	65	100	50	22	55	13	132	170	95

(b) Parts 5 and 6

Figure 2: Task 1



Детали	
1	БИГЕXXXXXX.006
2	БИГЕXXXXXX.007
<u>Стандартные изделия</u>	
3	Шайба А2037 ГОСТ 11371-78
4	Шпилька М20-6gх50 ГОСТ 22034-76
5	Гайка шестигранная нормальная ГОСТ ISO 4032-М20

Figure 3: Task 2

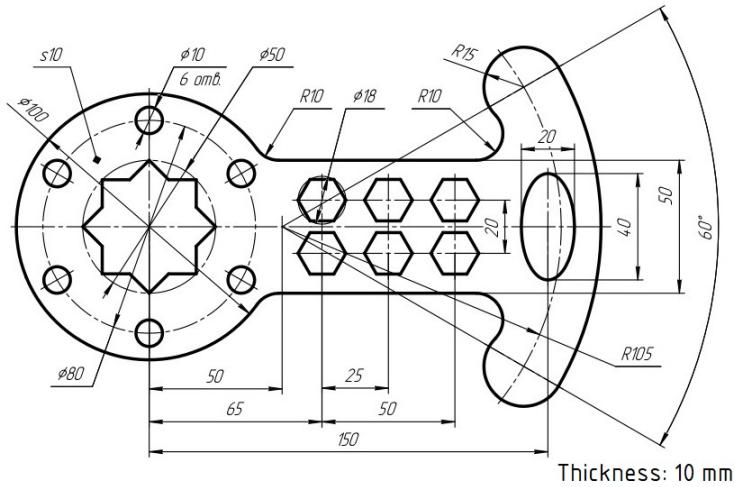
«Introduction to Mechanical Engineering»

Final Exam

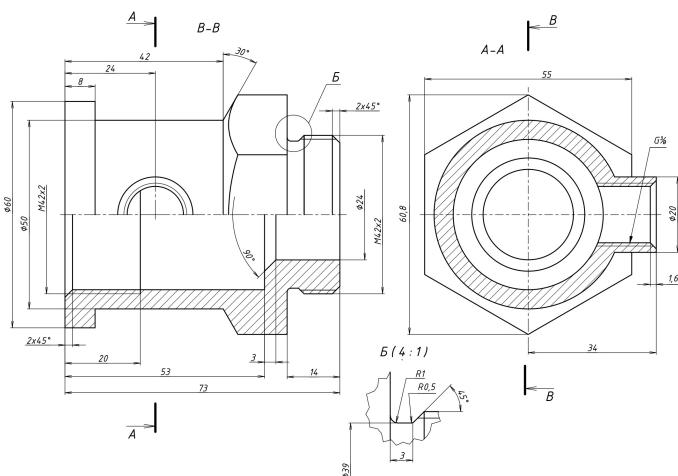
CAD modeling

Variant: 7

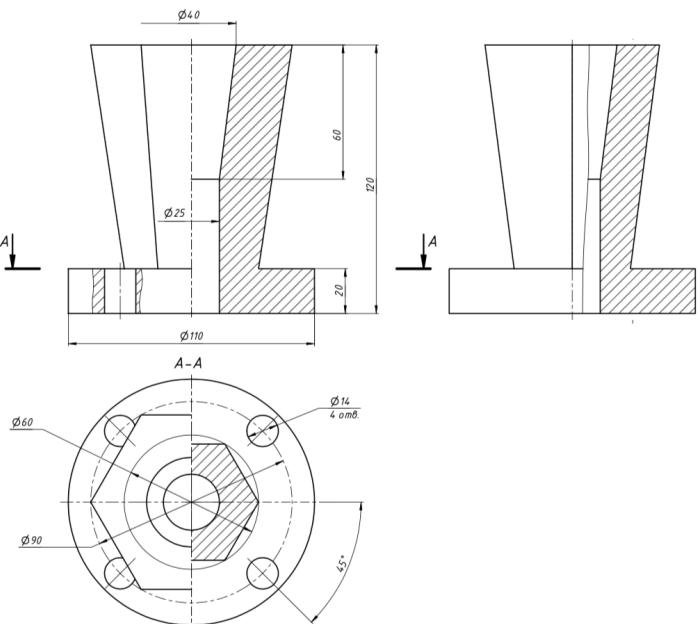
1. Make all CAD models from the blueprints, which provided below (figs. 1 and 2). (15 score)
2. Make an assembly. Description is on the figure (fig. 3). (5 score)
Decimal number — <3 first surname letters>2023.<variant>.000 (Bulichev → BUL2023.07.000)
3. Make the same blueprints (without dimensions), based on your CAD models. (3 extra score)
4. Provide a BOM for your assembly. It should contain name, decimal number, amount of details. (2 extra score)



(a) Part 1

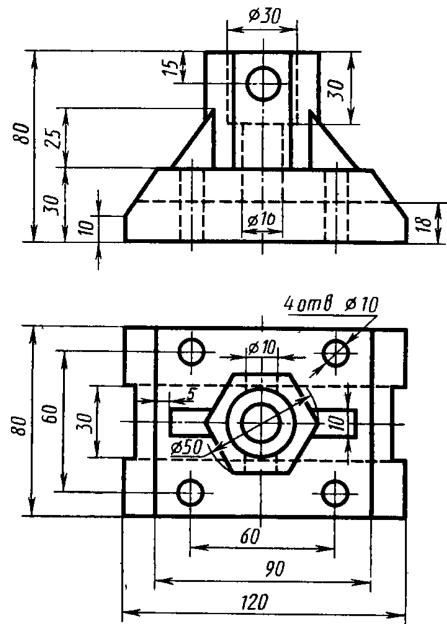


(b) Part 2

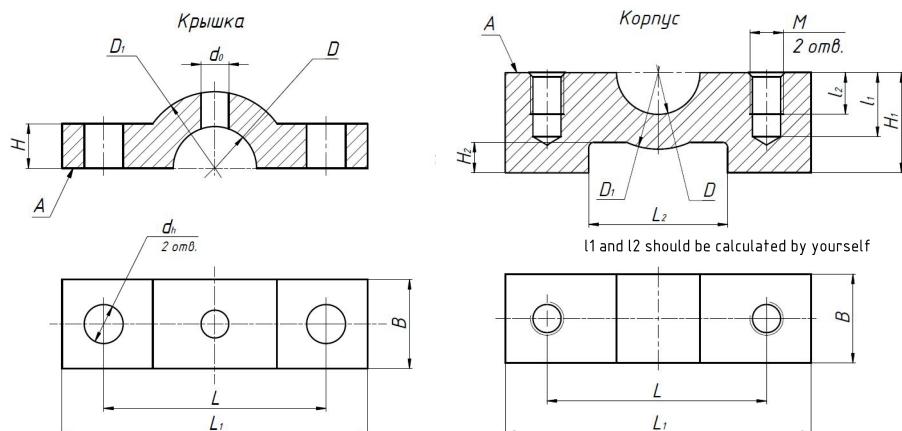


(c) Part 3

Figure 1: Task 1



(a) Part 4

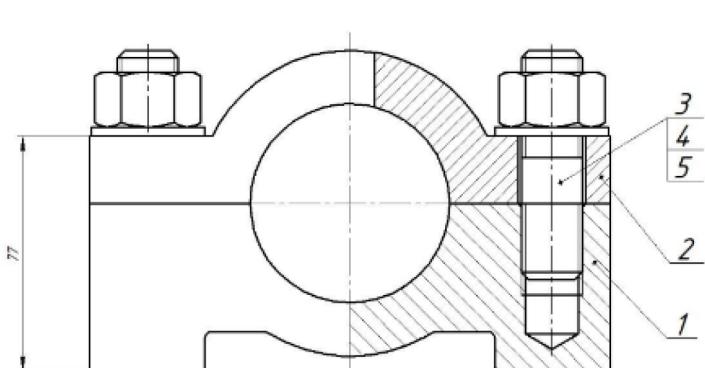


Неуказанные литьевые радиусы 3...5 мм.

Шпилька по ГОСТ 22036-76	d_h	d_0	D	D_1	B	H	H_1	H_2	L	L_1	L_2
M20x1	22	16	65	100	50	22	55	13	132	170	95

(b) Parts 5 and 6

Figure 2: Task 1



Детали	
1 БИГЕXXXXXX.006	Корпус
2 БИГЕXXXXXX.007	Крышка
<u>Стандартные изделия</u>	
3	Шайба А2037 ГОСТ 11371-78
4	Шпилька М20-6gх50 ГОСТ 22034-76
5	Гайка шестигранная нормальная ГОСТ ISO 4032-М20

Figure 3: Task 2

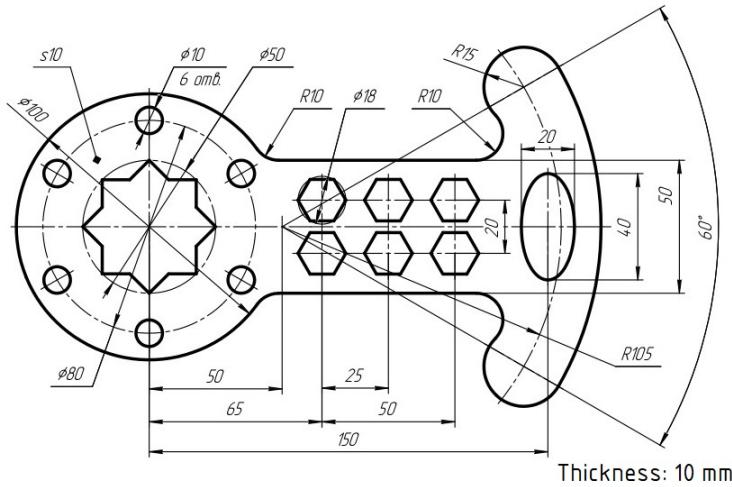
«Introduction to Mechanical Engineering»

Final Exam

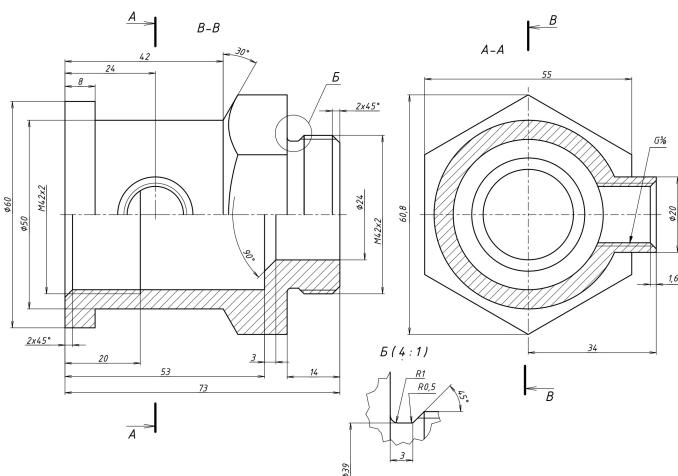
CAD modeling

Variant: 8

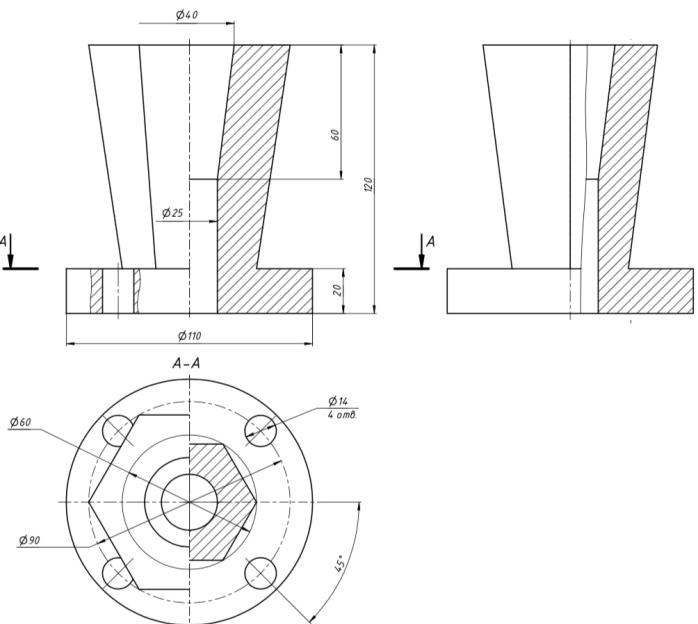
1. Make all CAD models from the blueprints, which provided below (figs. 1 and 2). (15 score)
2. Make an assembly. Description is on the figure (fig. 3). (5 score)
Decimal number — <3 first surname letters>2023.<variant>.000 (Bulichev → BUL2023.08.000)
3. Make the same blueprints (without dimensions), based on your CAD models. (3 extra score)
4. Provide a BOM for your assembly. It should contain name, decimal number, amount of details. (2 extra score)



(a) Part 1

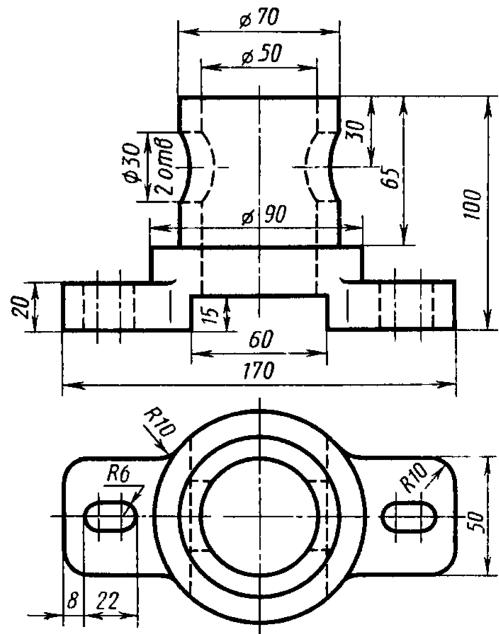


(b) Part 2

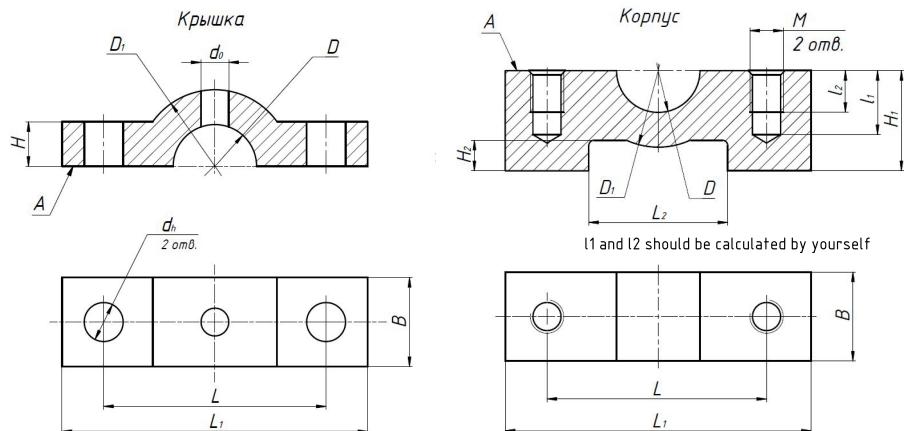


(c) Part 3

Figure 1: Task 1



(a) Part 4

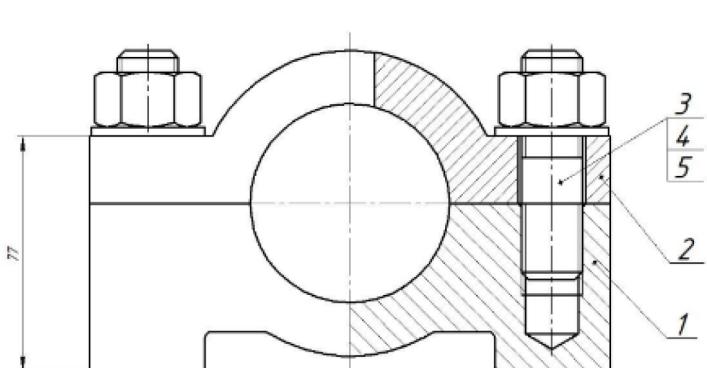


Неуказанные литьевые радиусы 3...5 мм.

Шпилька по ГОСТ 22036-76	dh	$d0$	D	D_1	B	H	H_1	H_2	L	L_1	L_2
M20x1	22	16	65	100	50	22	55	13	132	170	95

(b) Parts 5 and 6

Figure 2: Task 1



Детали	
1 БИГЕXXXXXX.006	Корпус
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Figure 3: Task 2