

TEKNİK EĞİTİM FAKÜLTESİ
ANKARA BÜYÜKŞEHİR BELEDİYESİ
BELTEK MESLEK EDİNDİRME KURSU

MAKİNA EĞİTİM BÖLÜMÜ
703 CAD I
BİLGİSAYAR DESTEKLİ ÇİZİM (2 BOYUT) KURSU

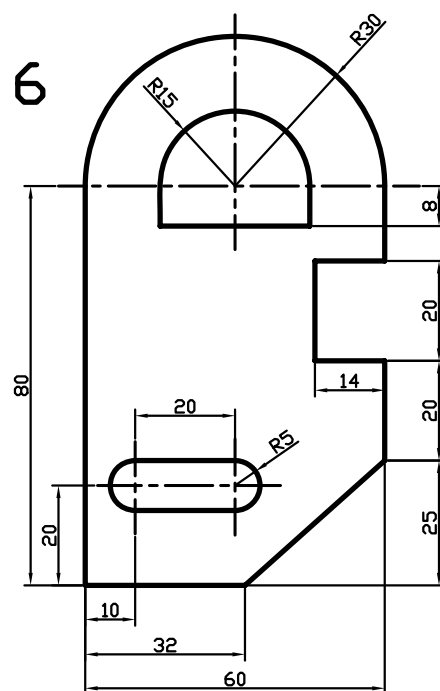
UYGULAMA ÖRNEKLERİ

Öğretim Elemanları
Prof. Dr. Ulvi ŞEKER
Arş. Gör. Abdullah KURT

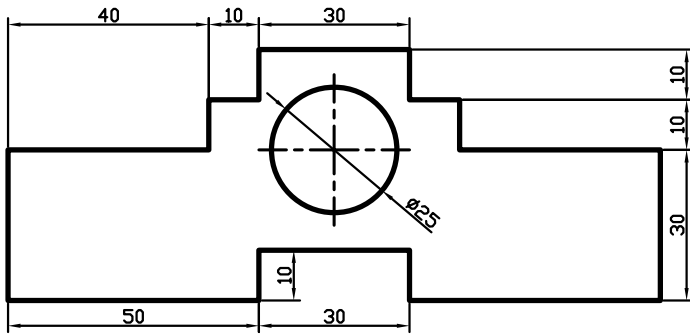
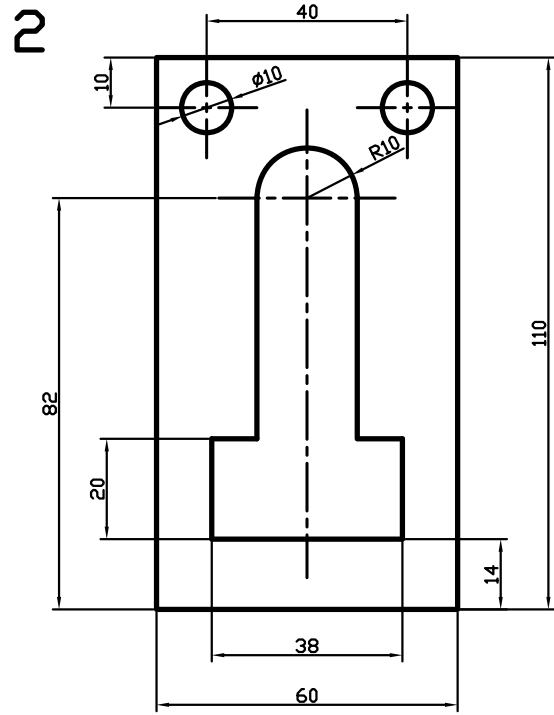
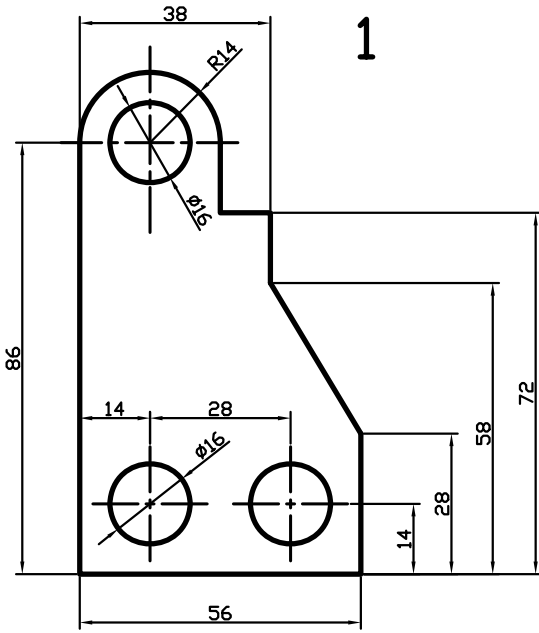
☎ : (312) 212 68 20 / 1893 (Abdullah KURT)
<http://w3.gazi.edu.tr/web/akurt>
akurt@gazi.edu.tr

2005

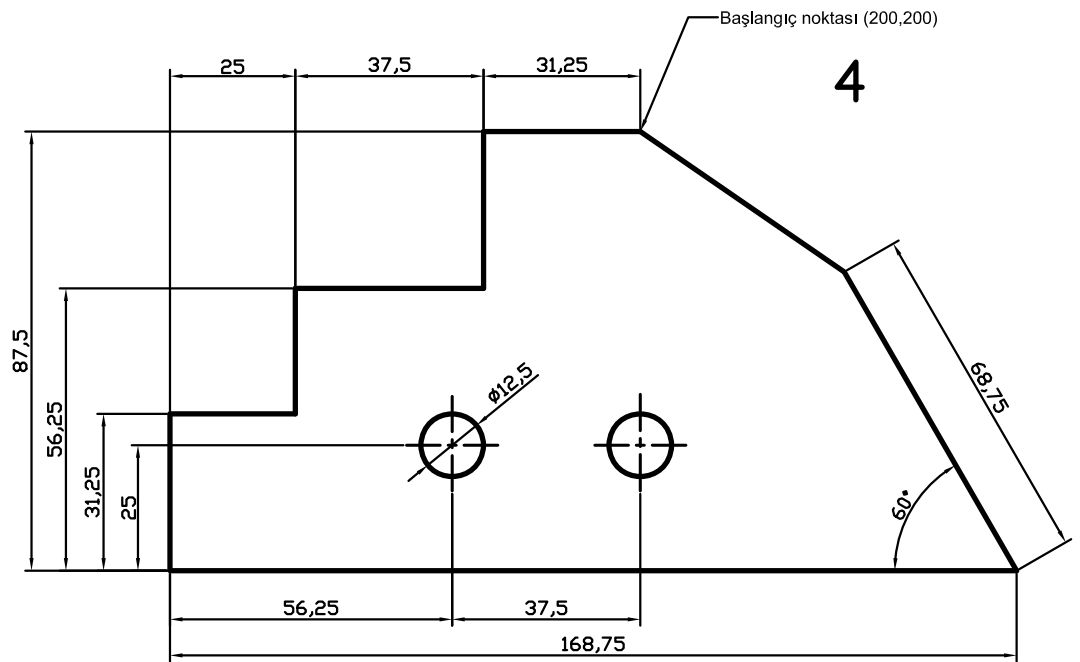
1



1

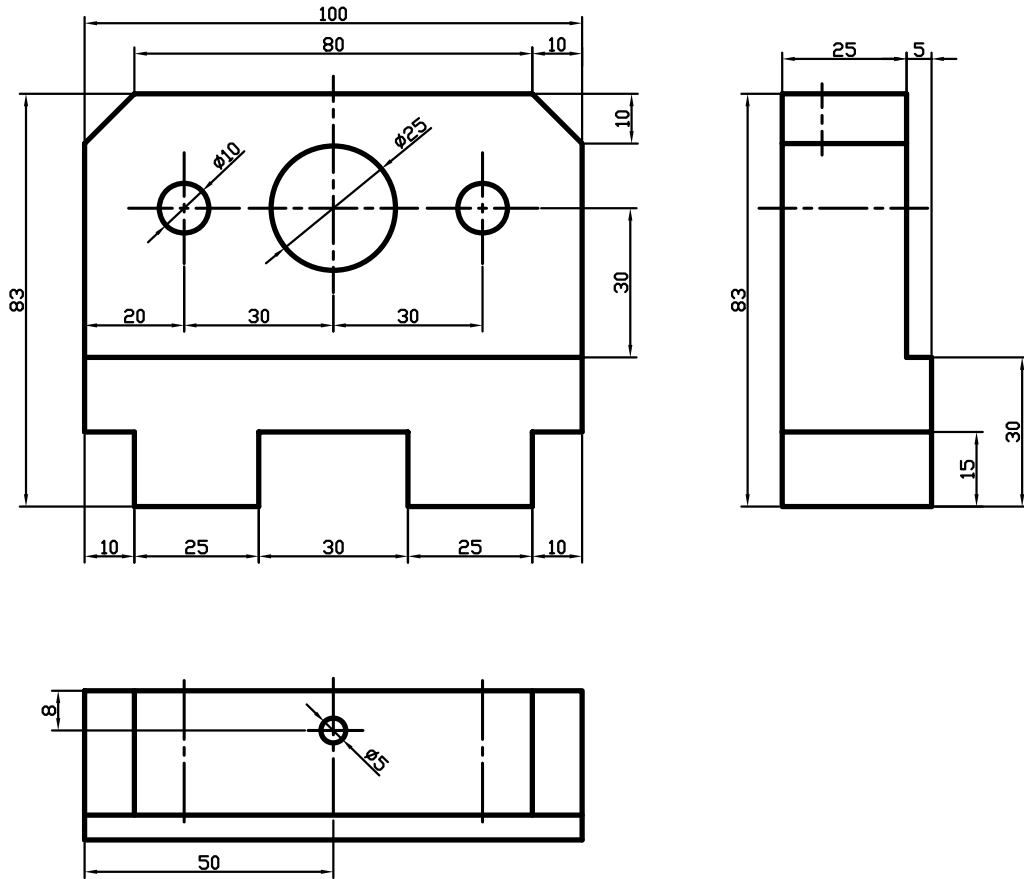


3

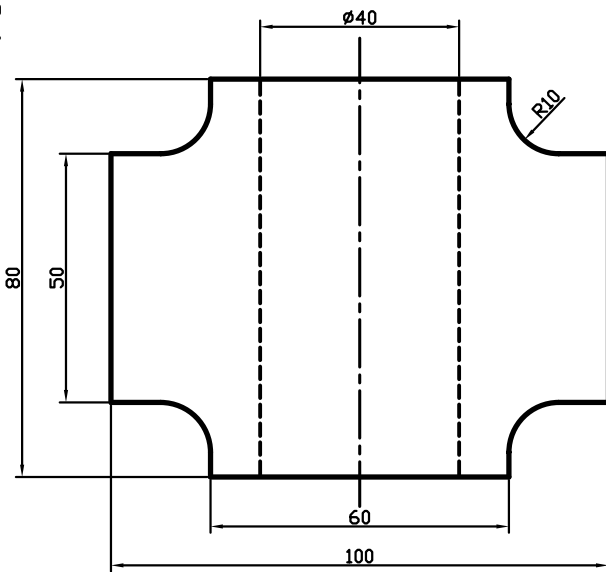


2

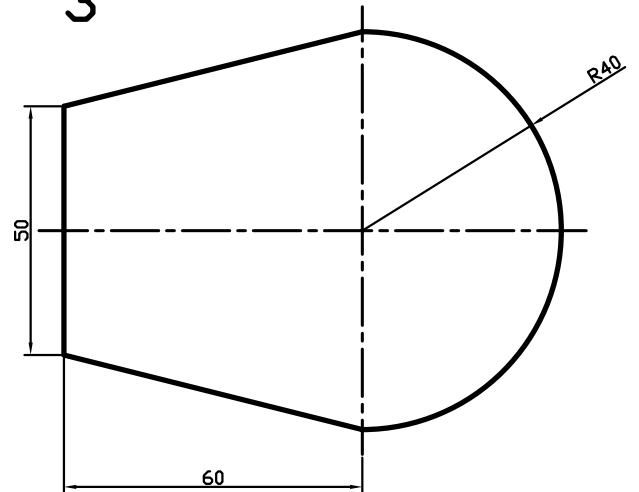
1



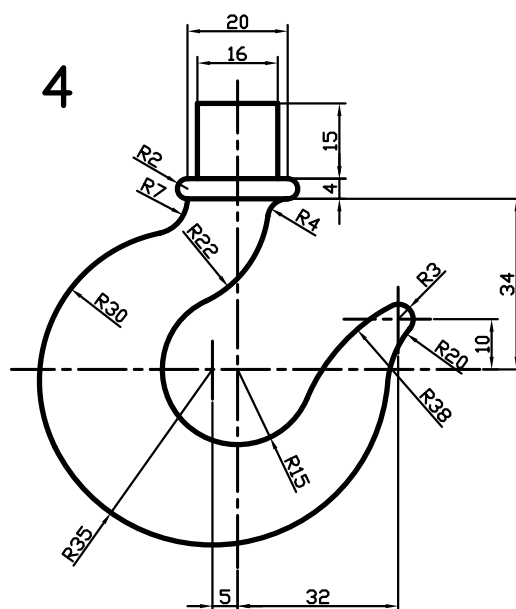
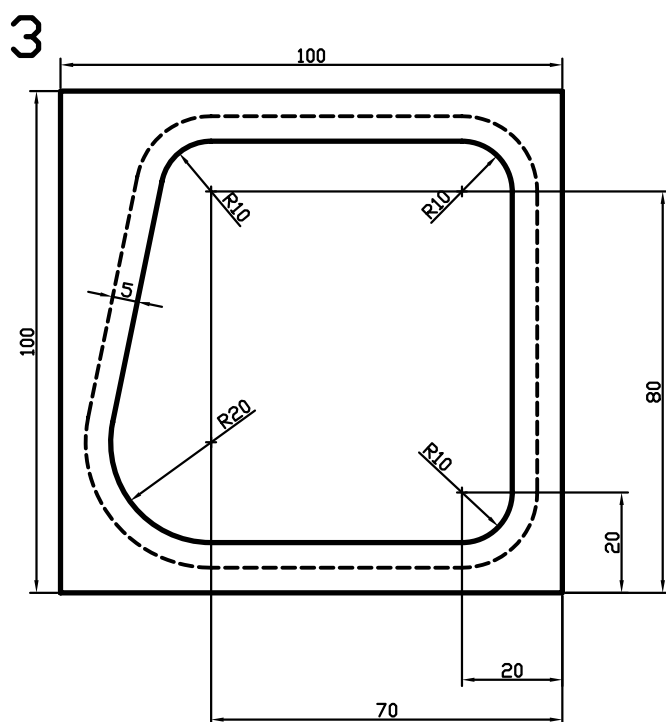
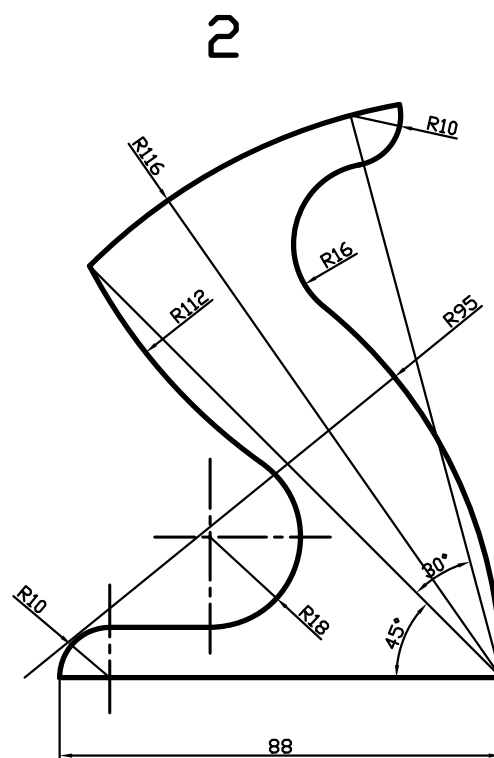
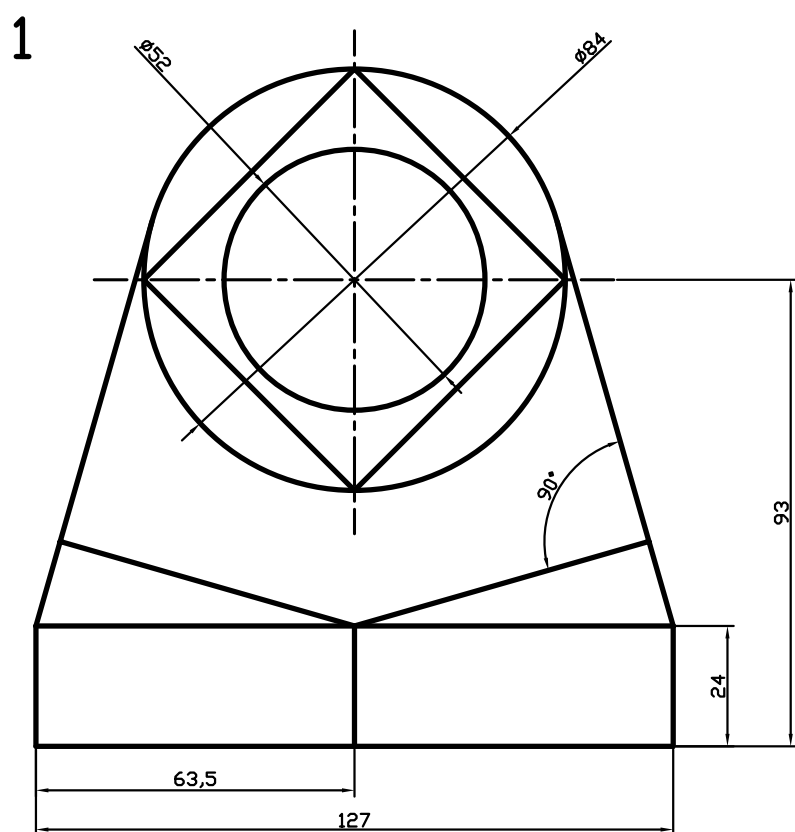
2



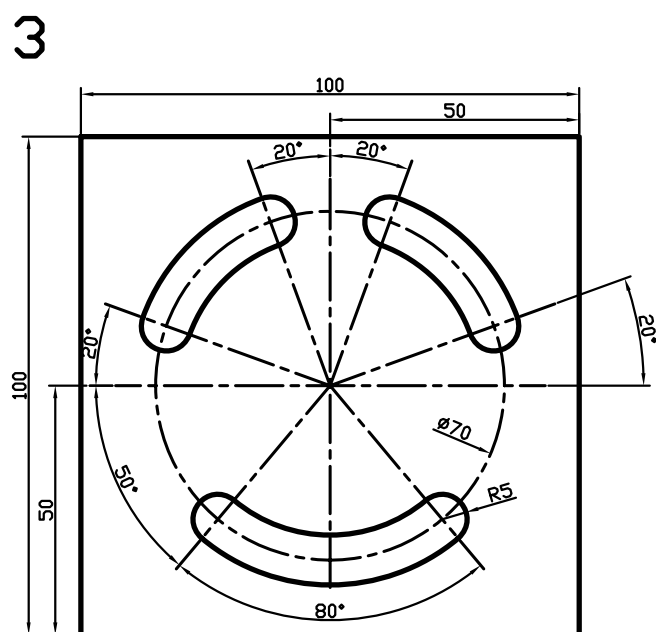
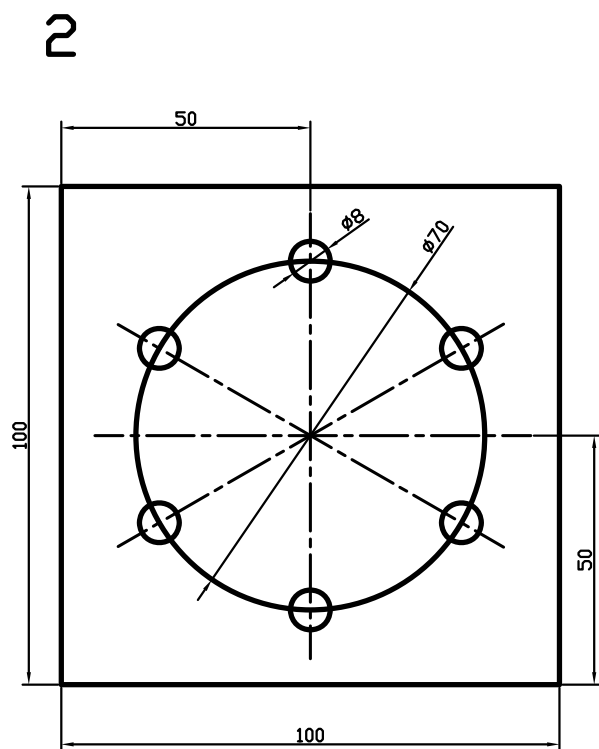
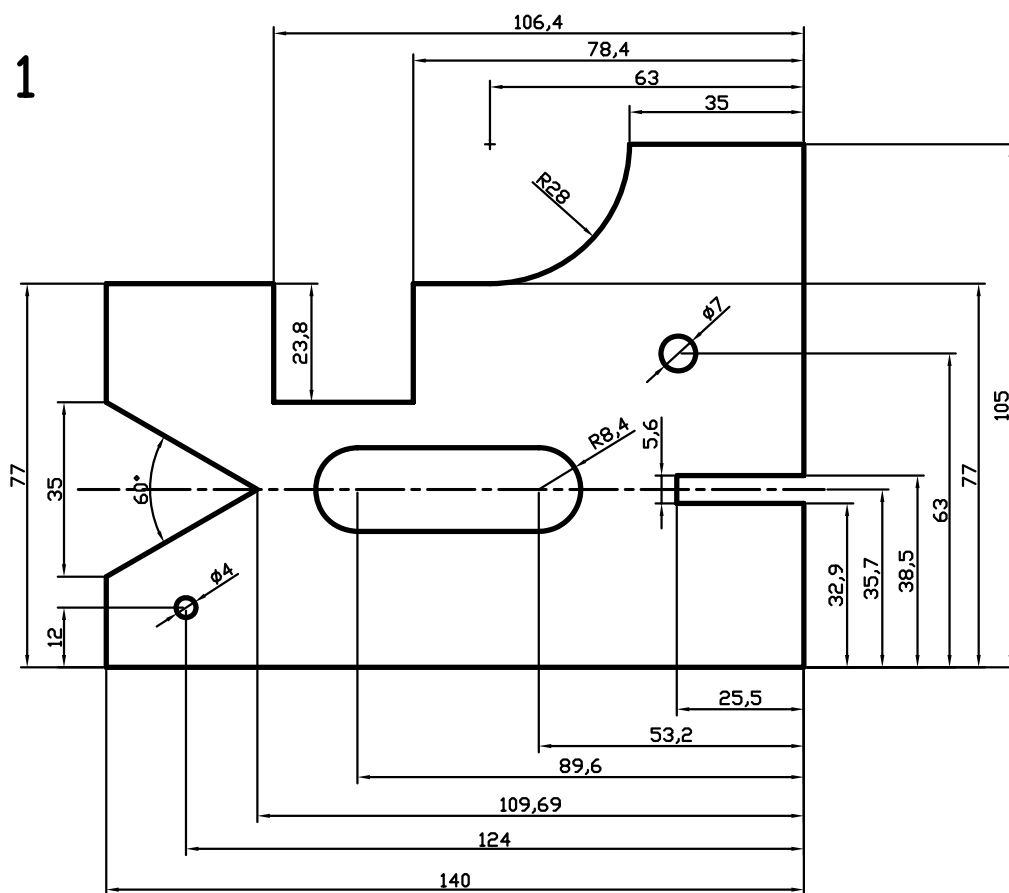
3



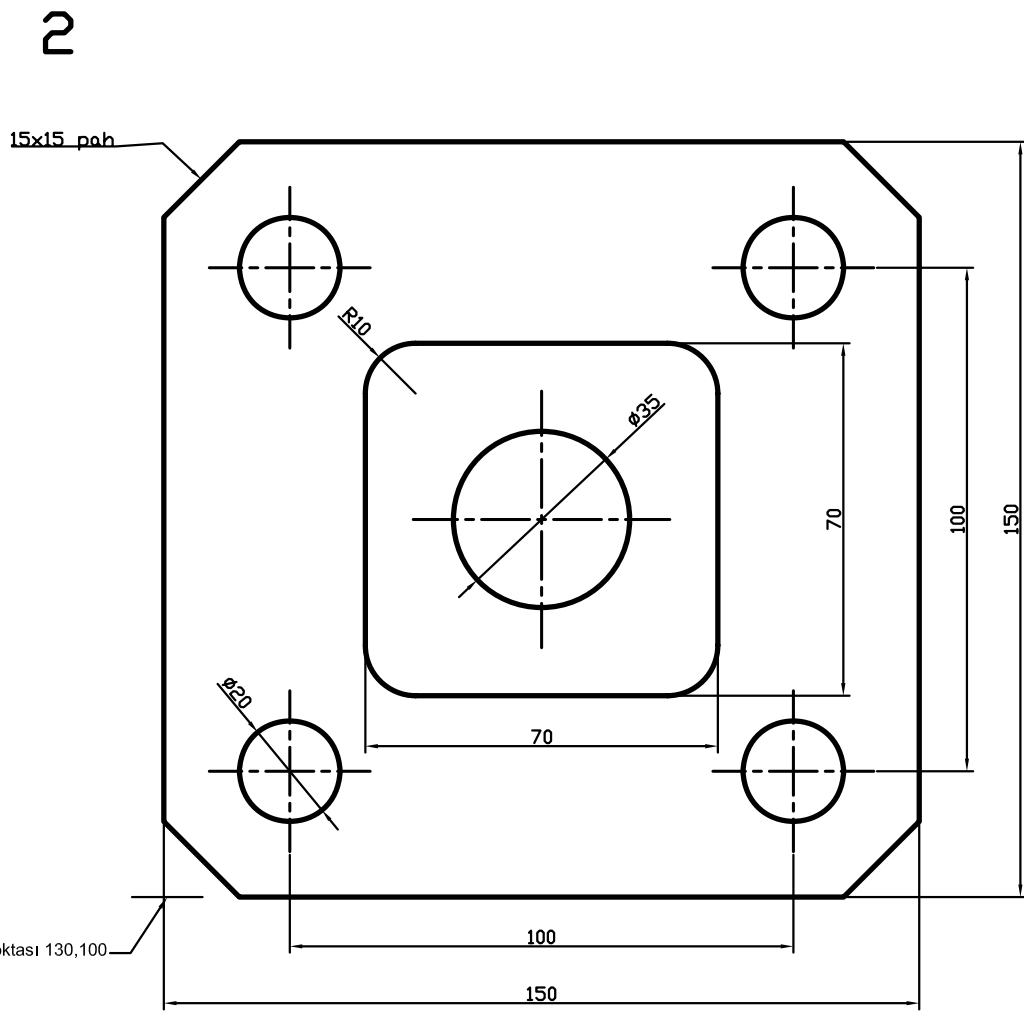
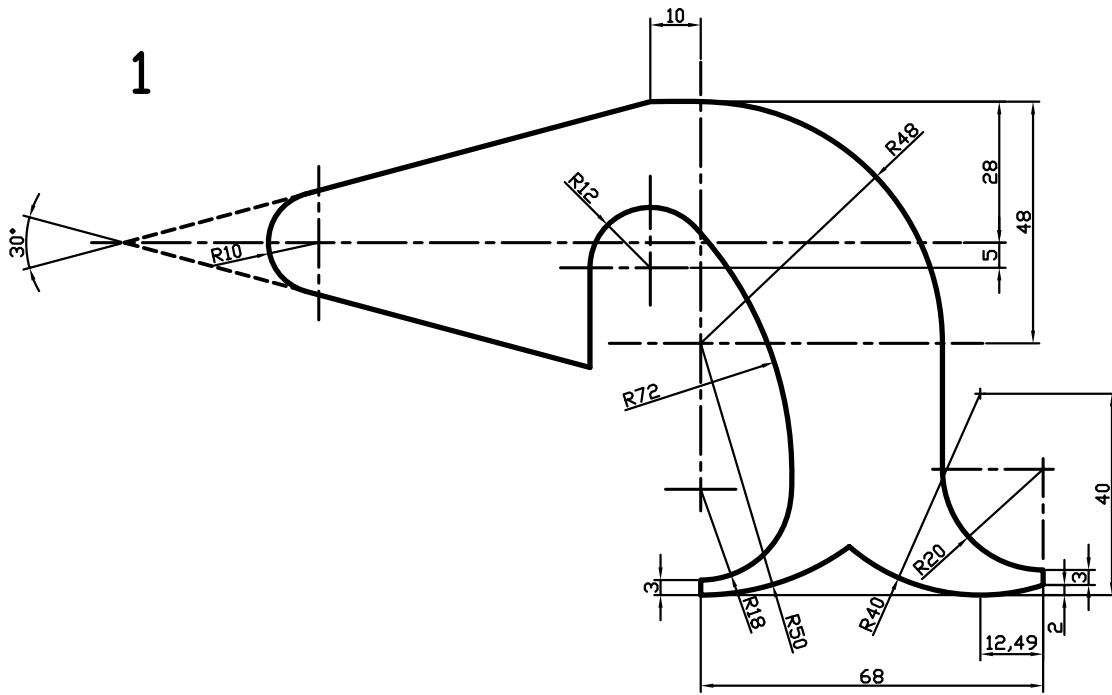
3

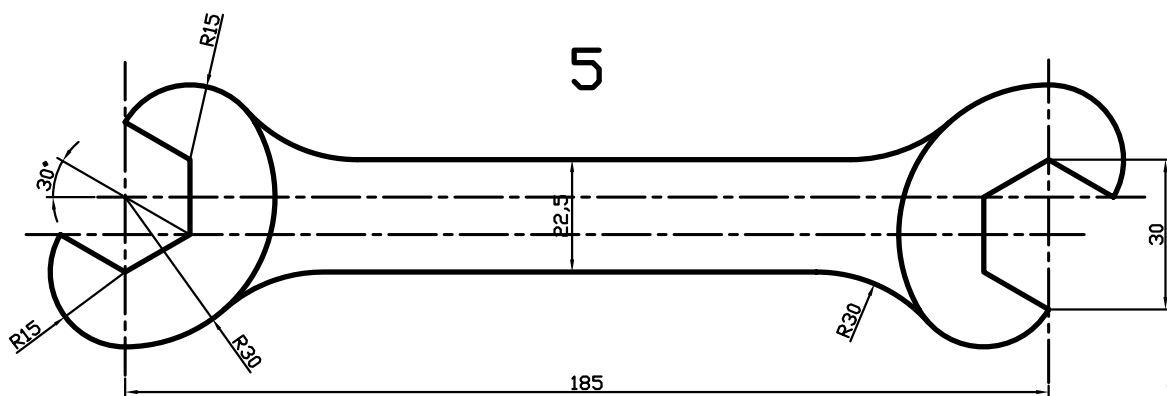
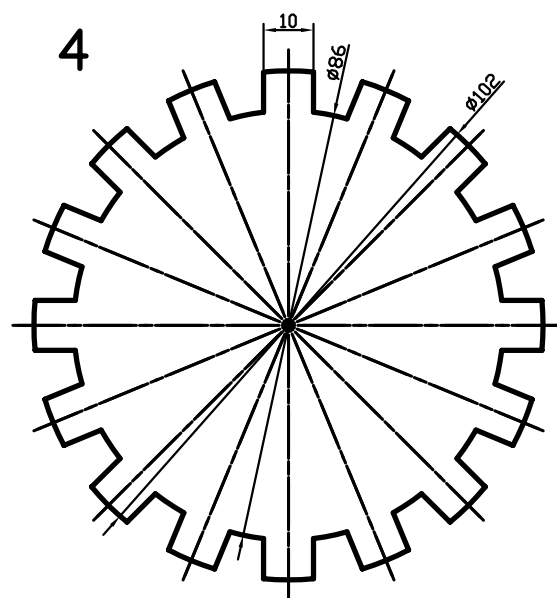
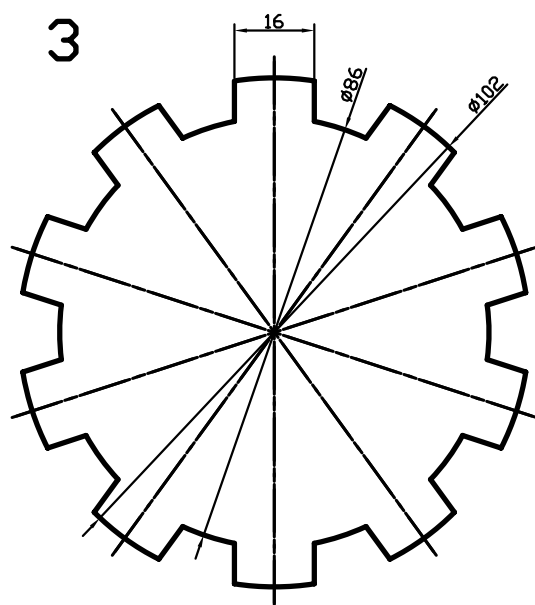
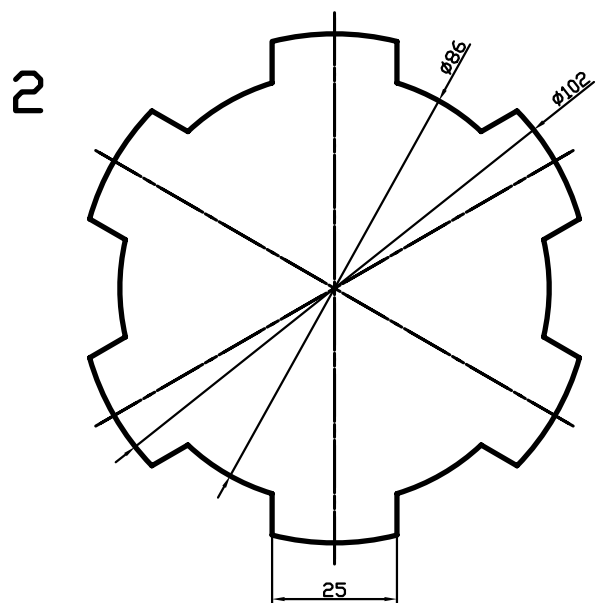
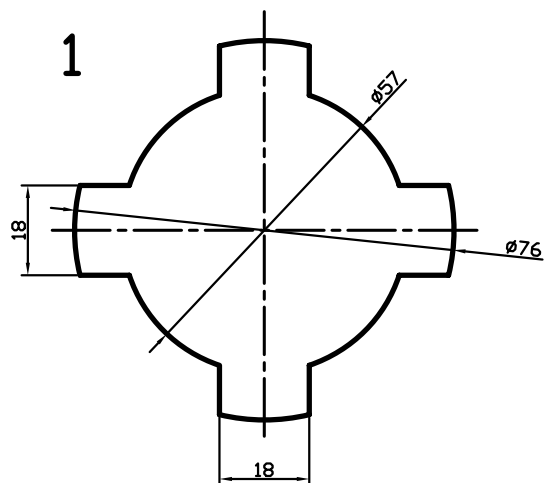


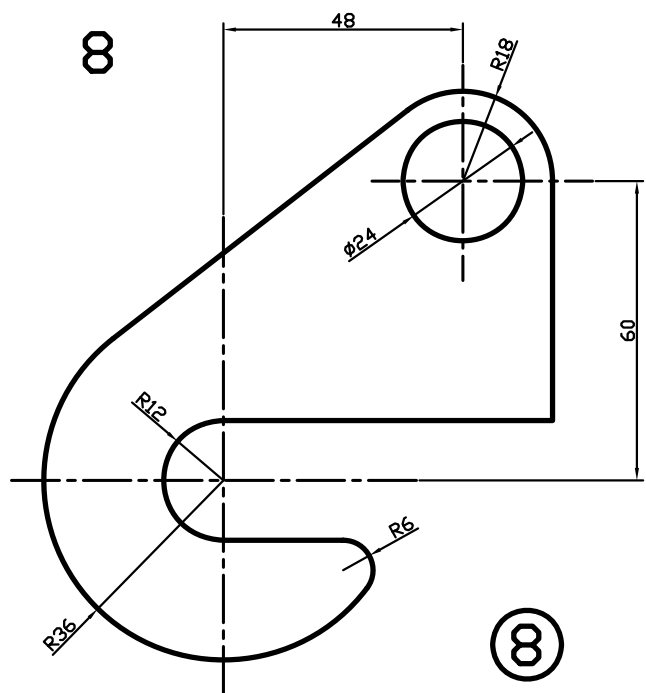
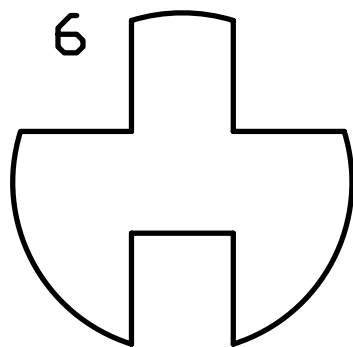
④

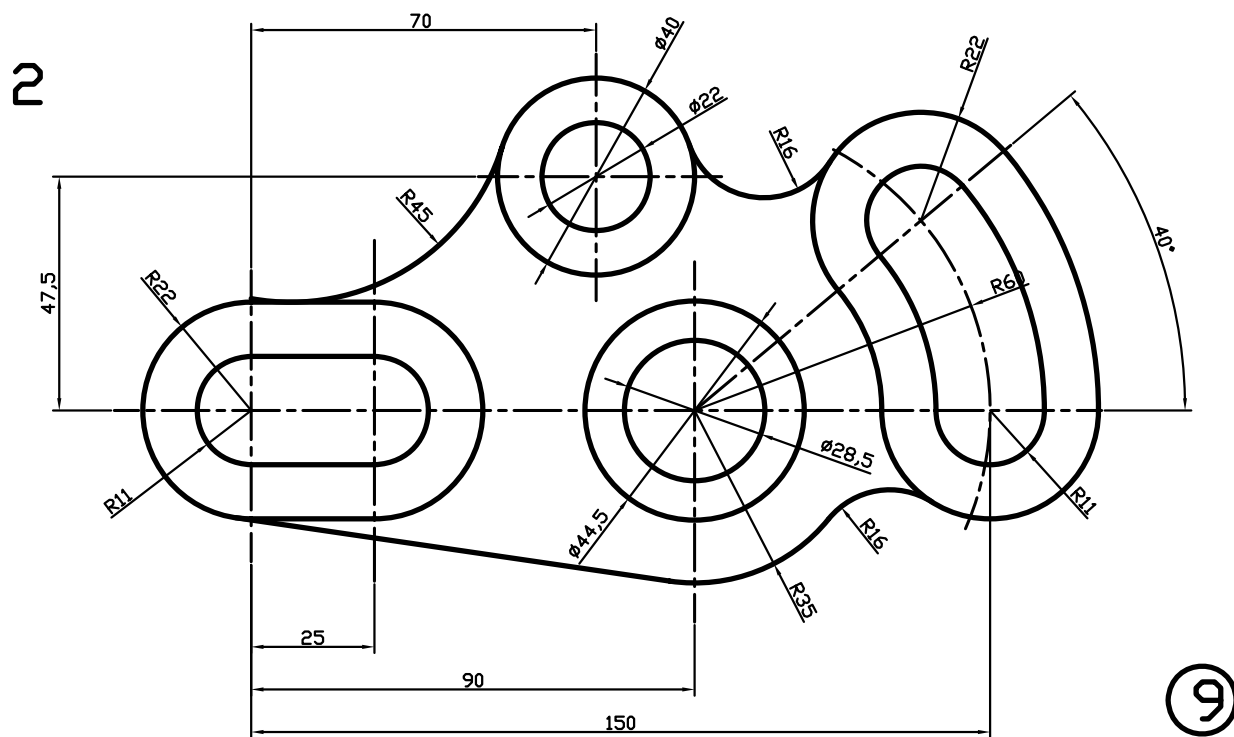
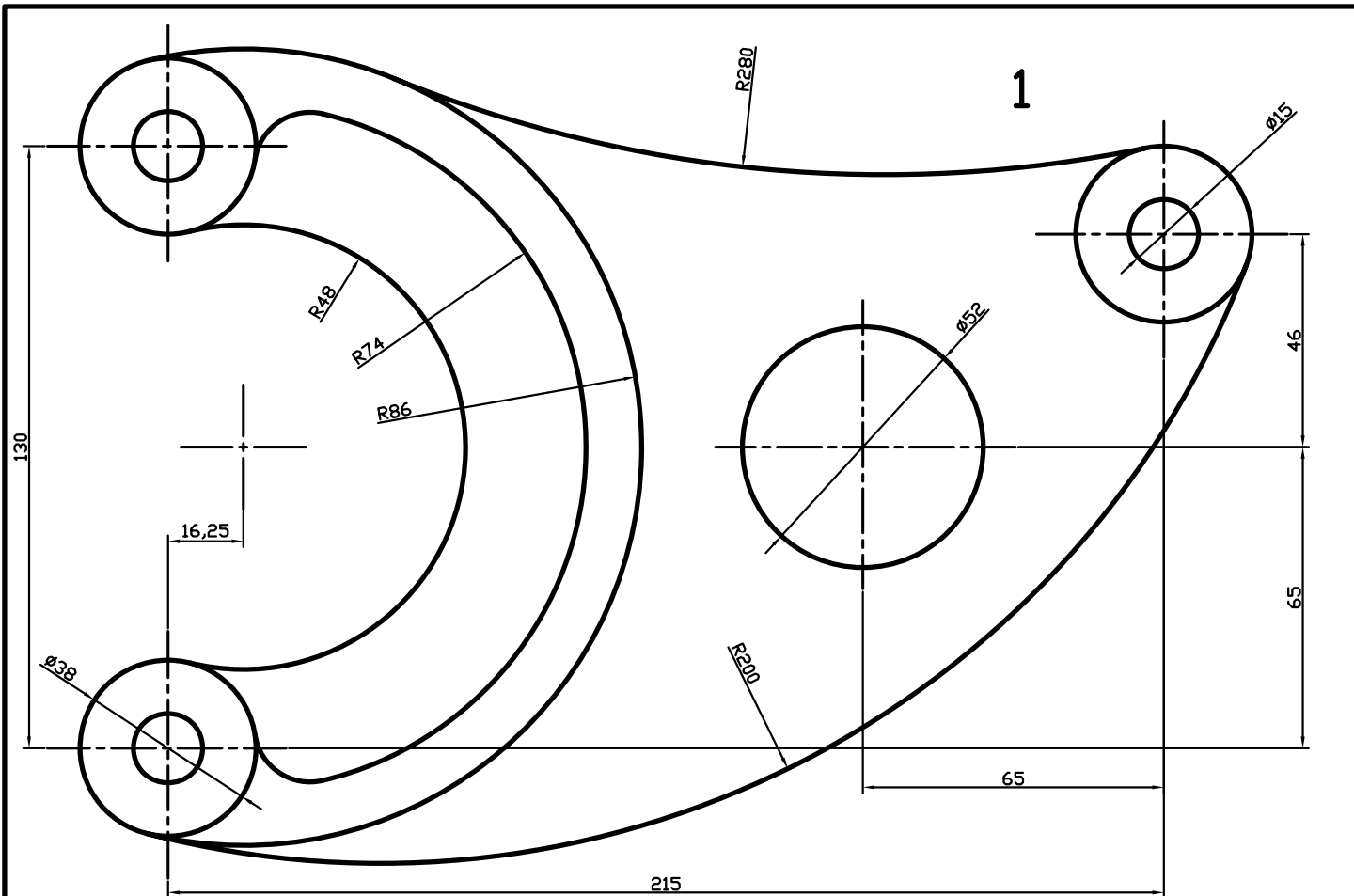


5

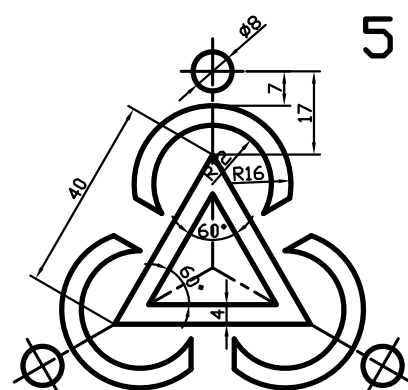
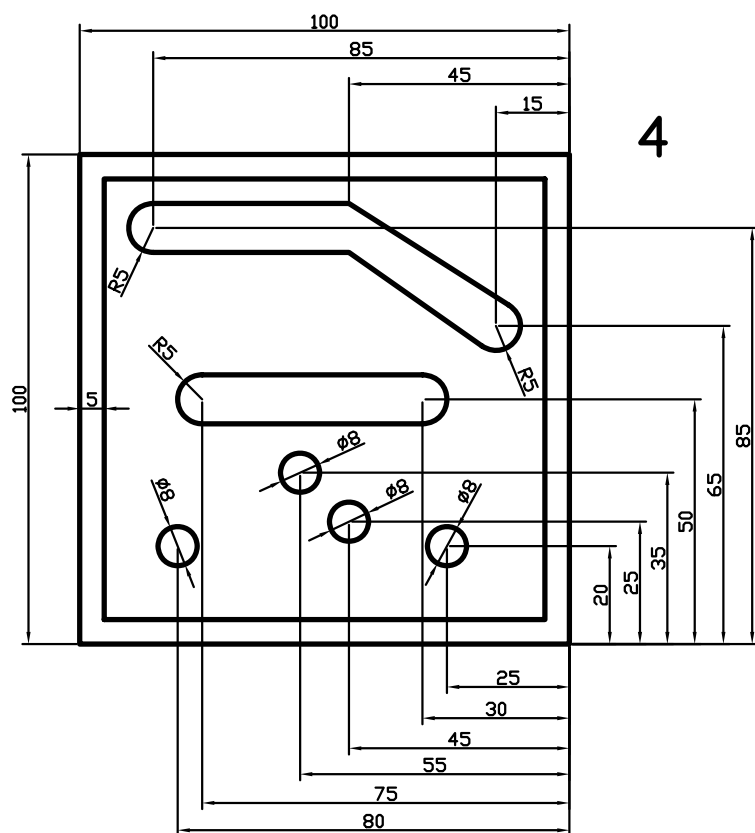
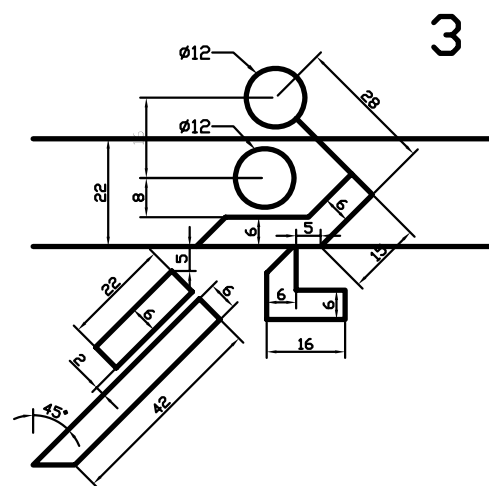
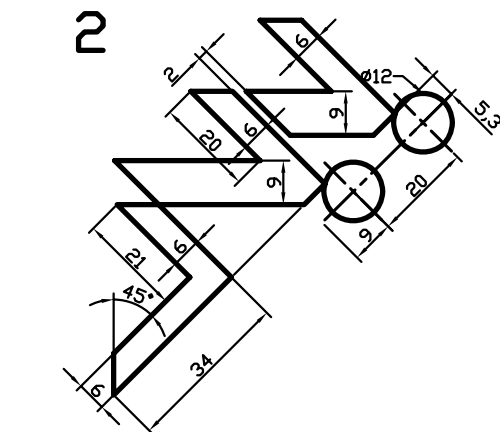
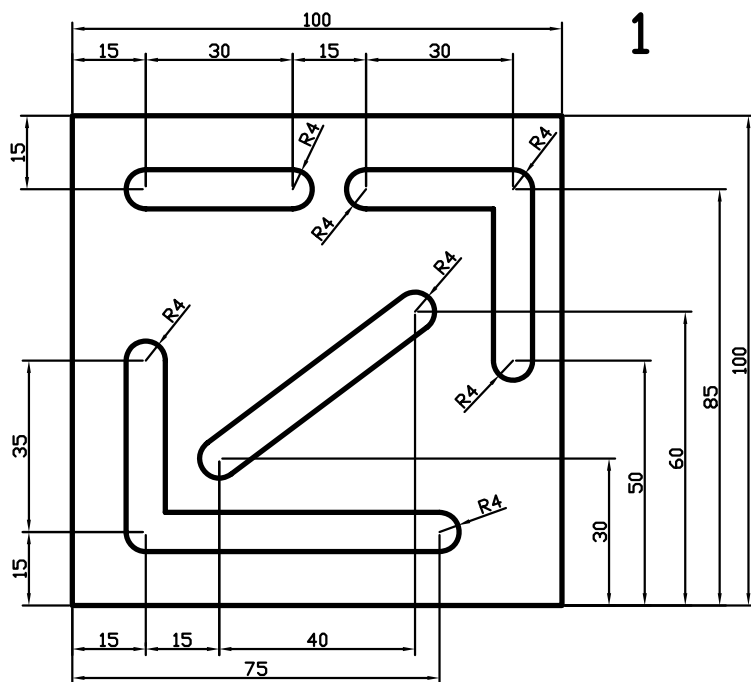


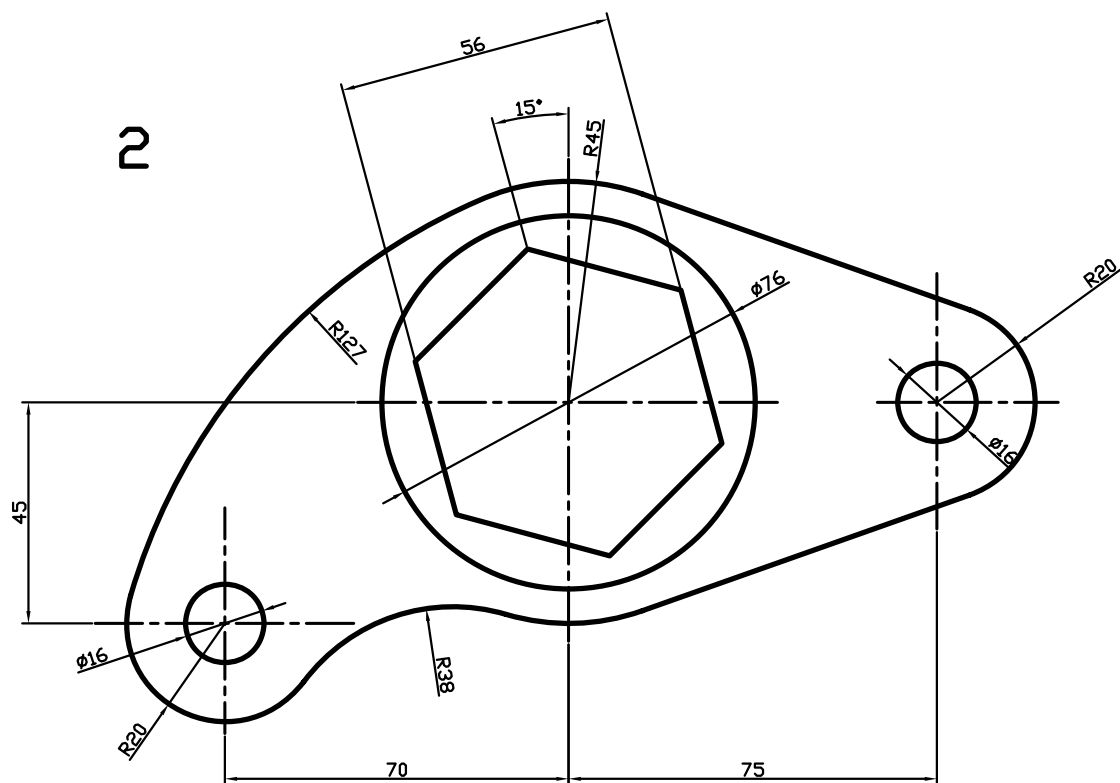
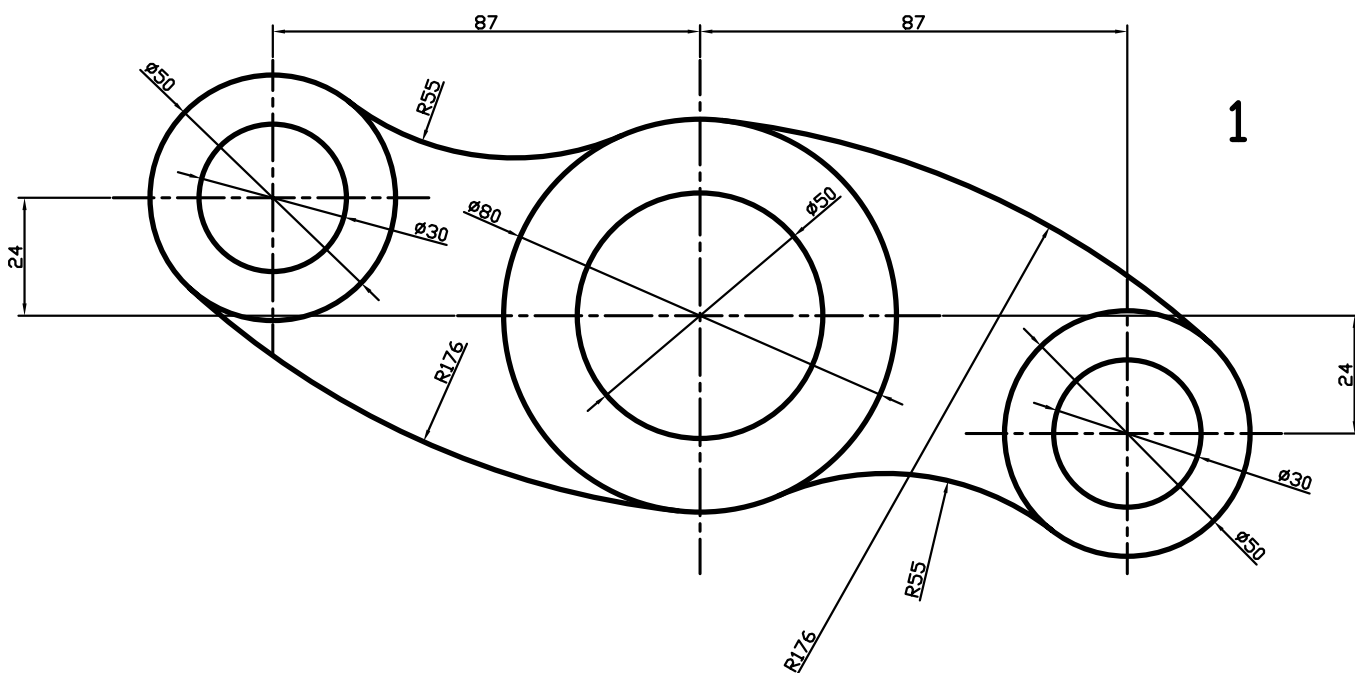




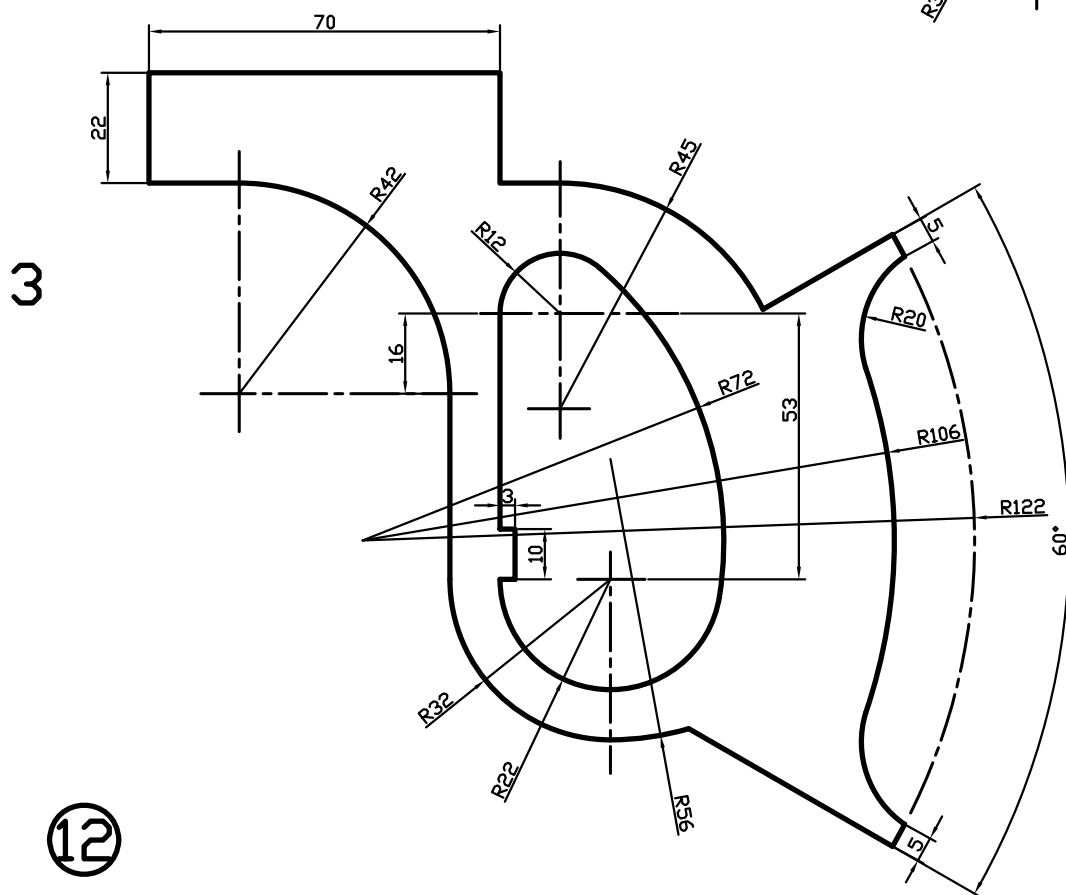
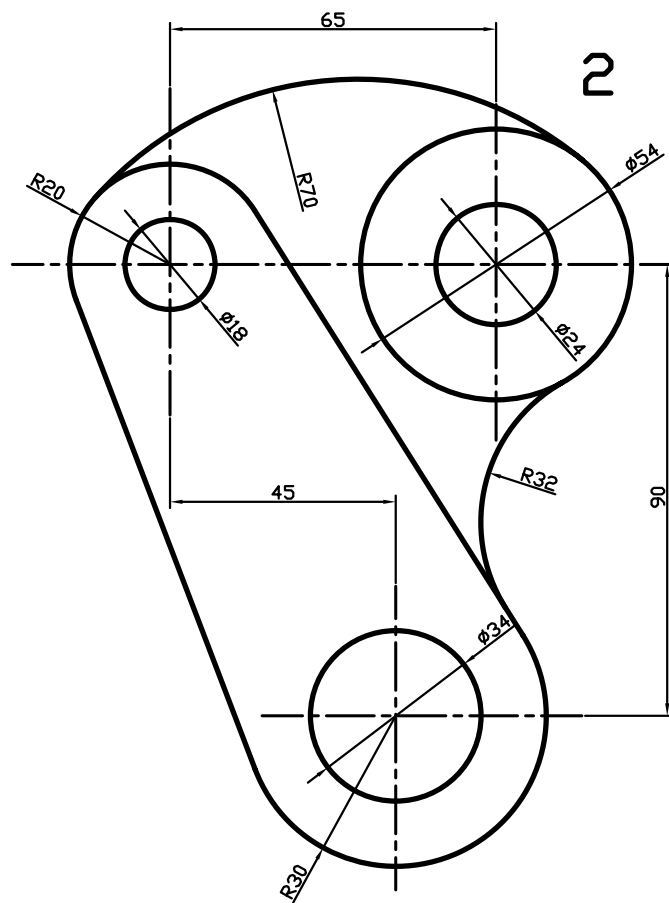
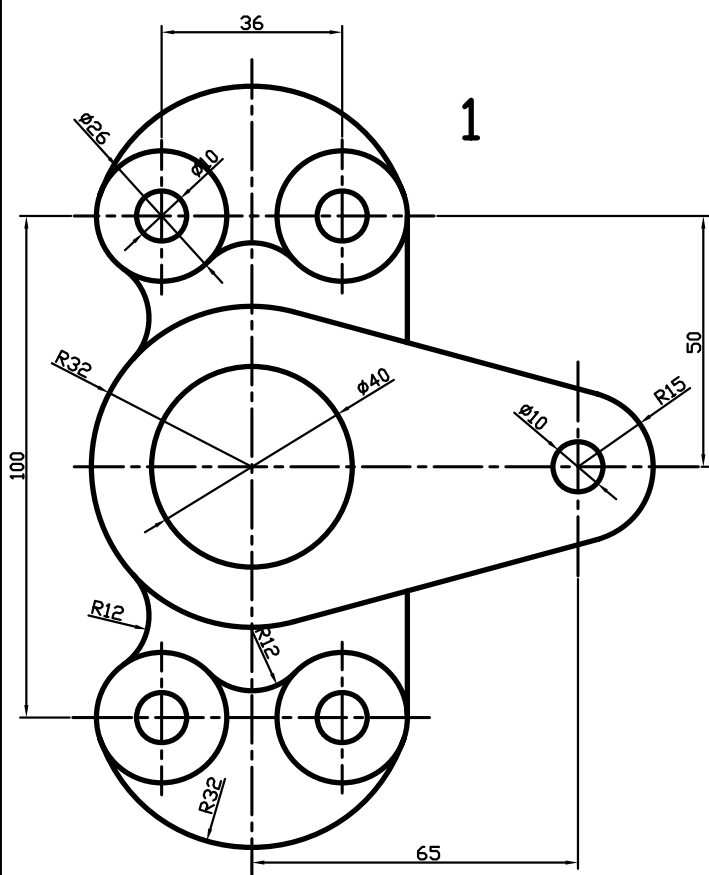


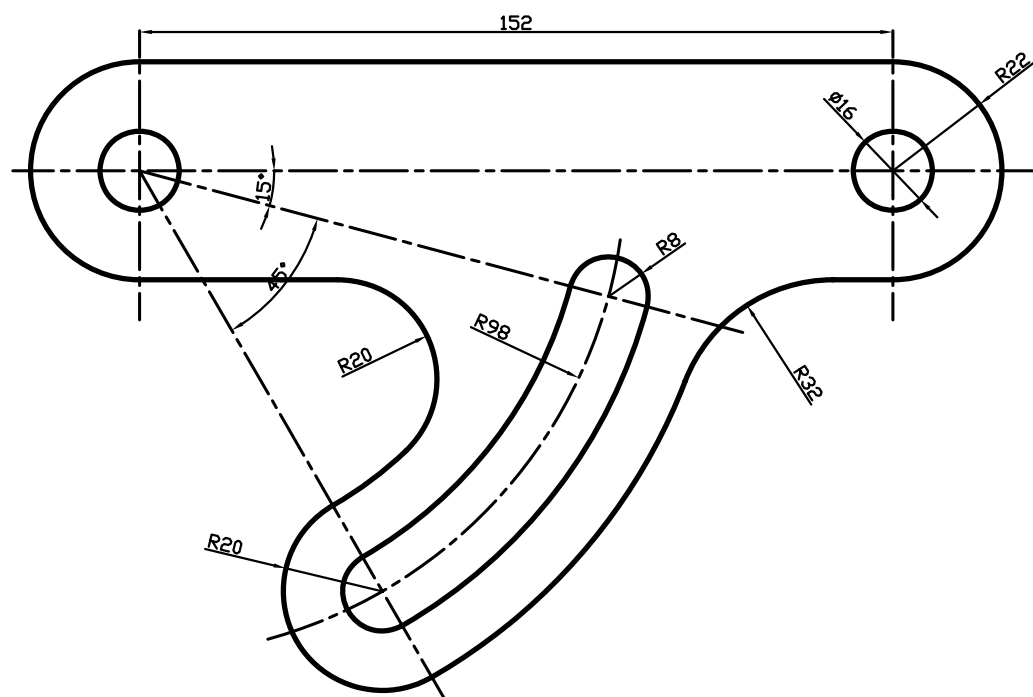
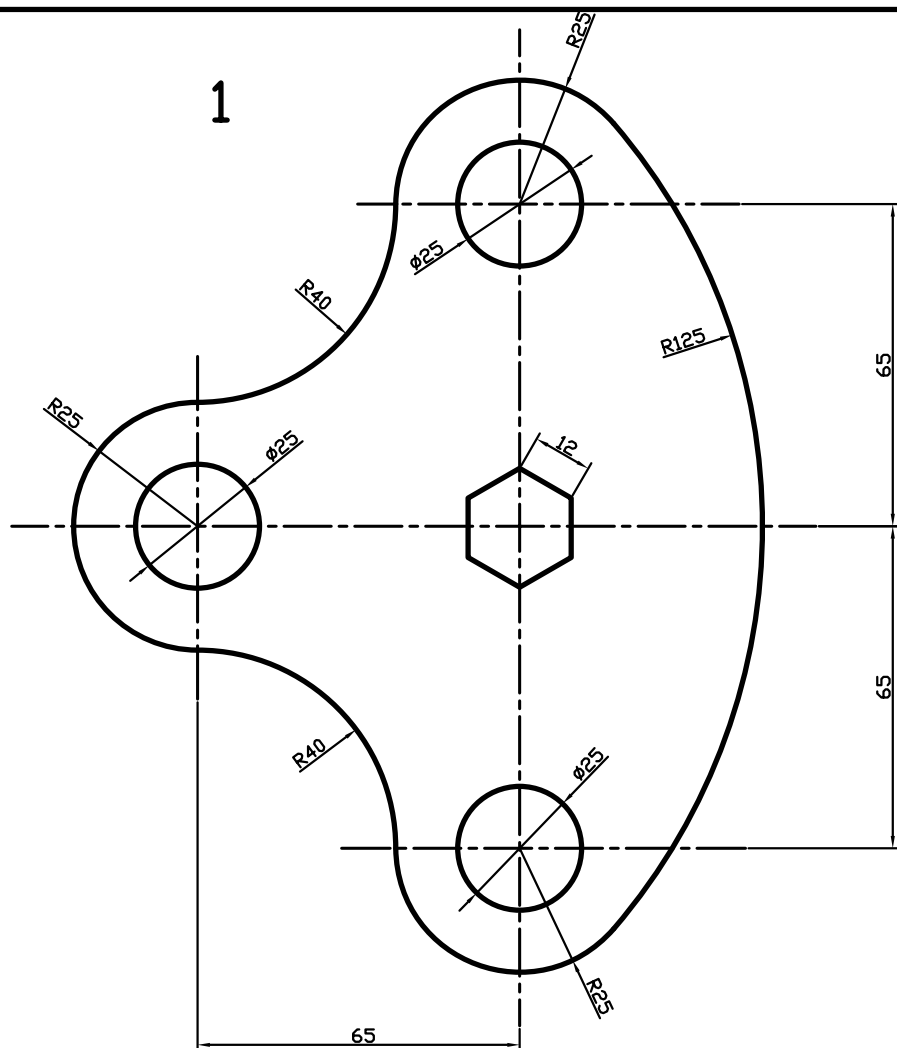
9



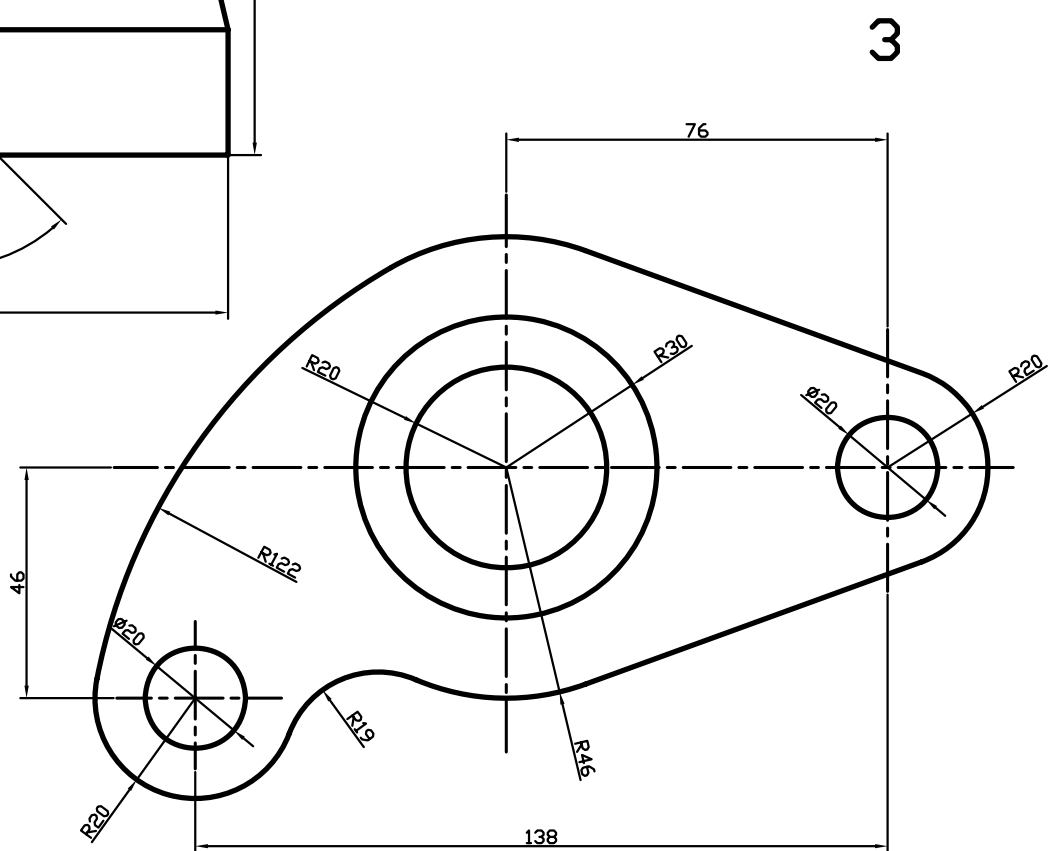
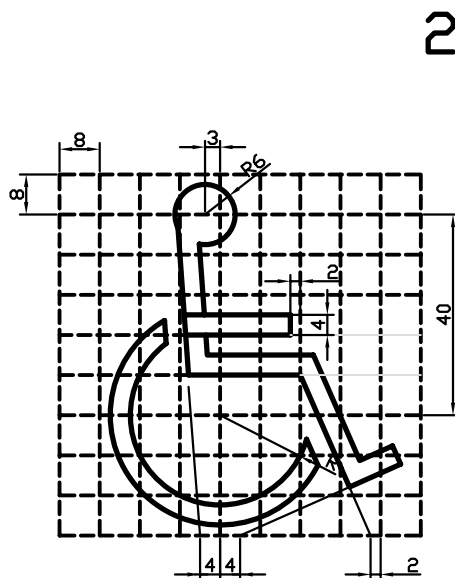
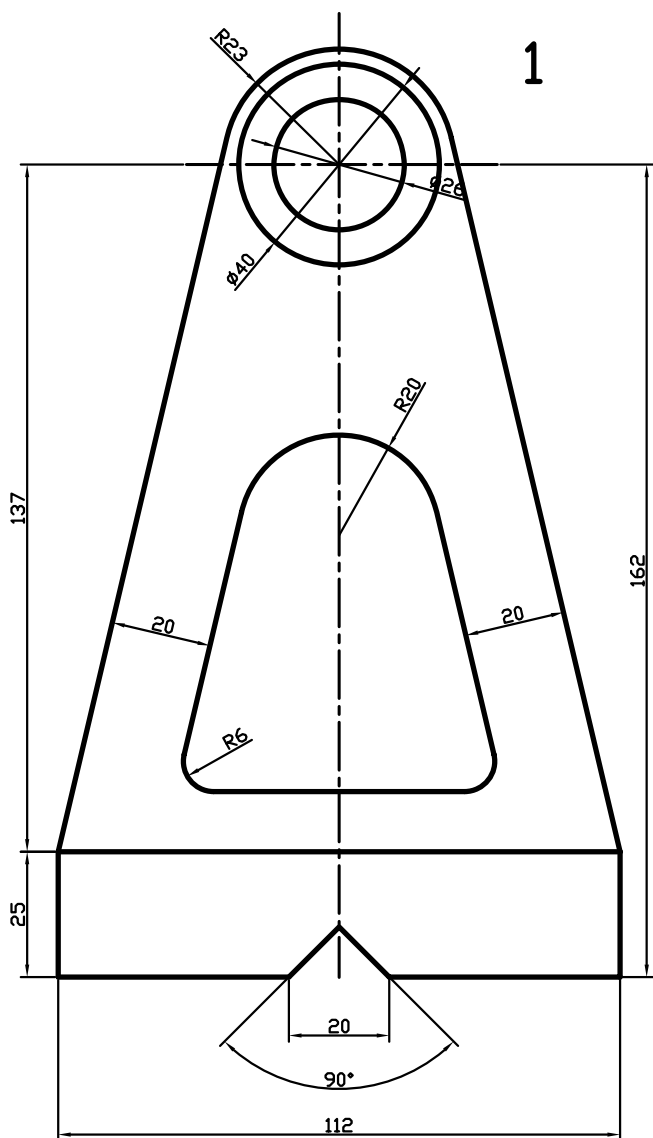


11



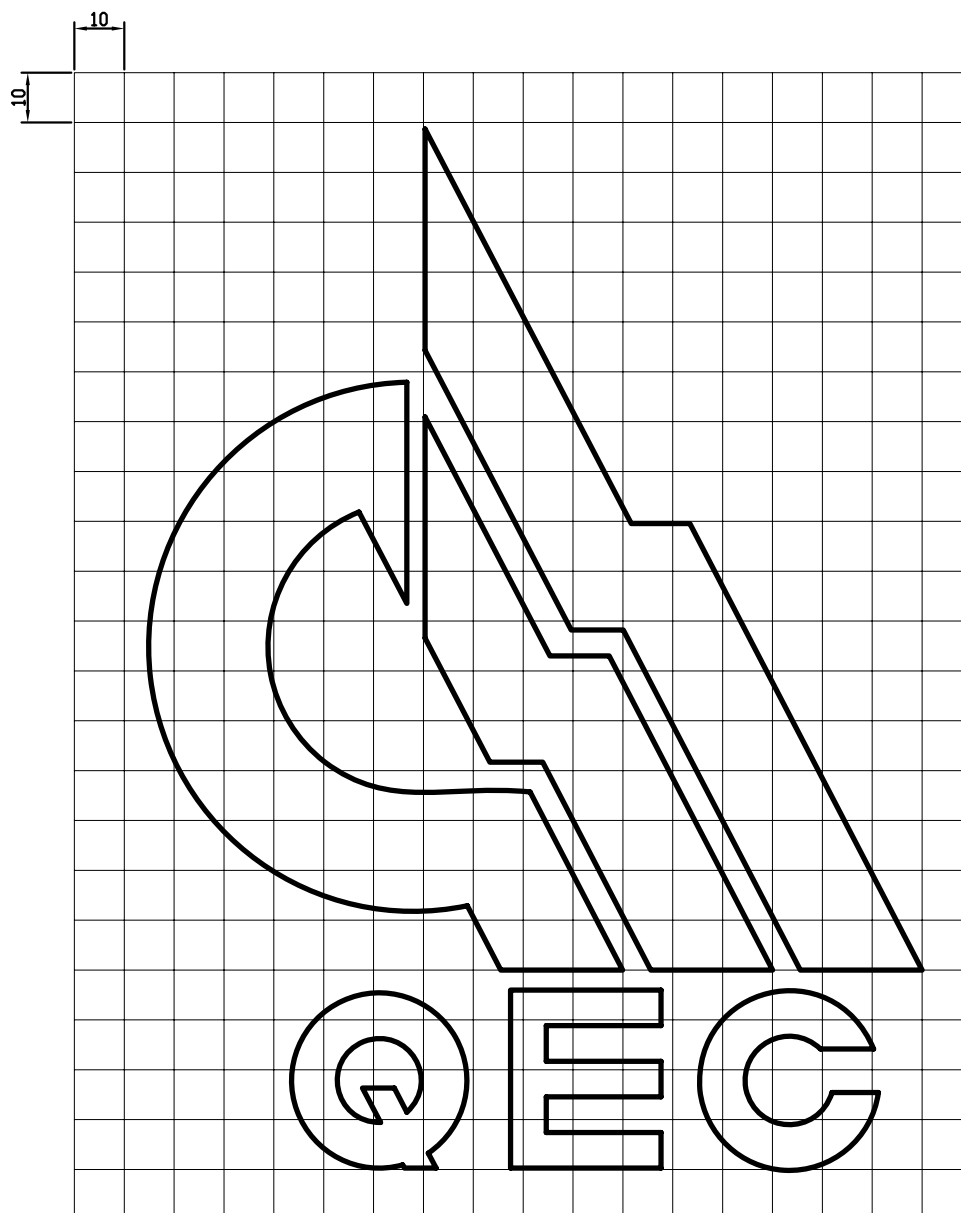


13

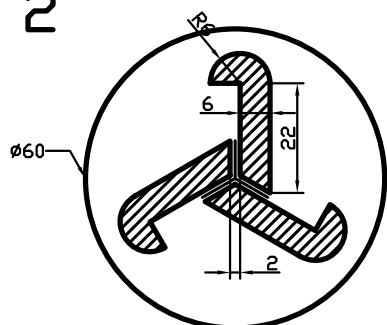


14

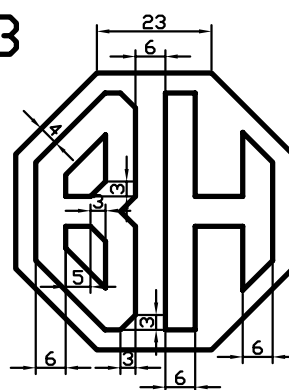
1



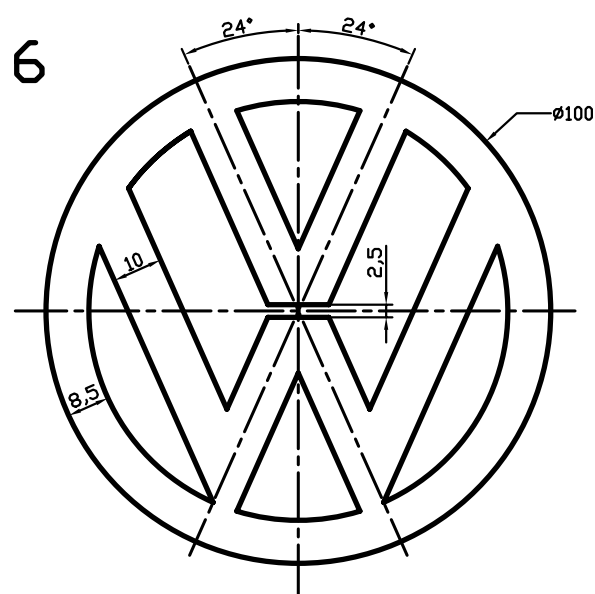
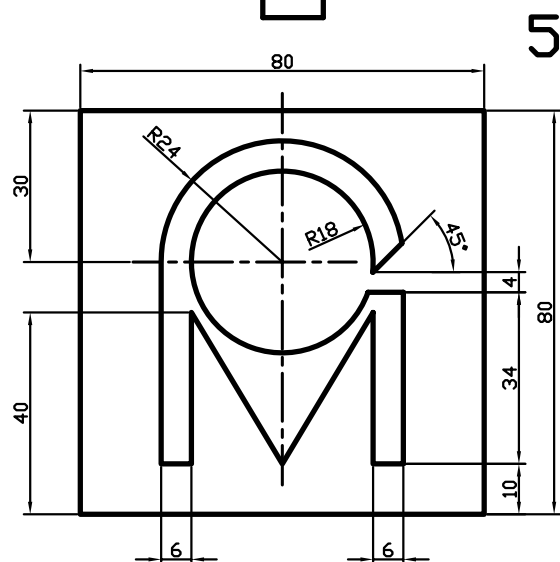
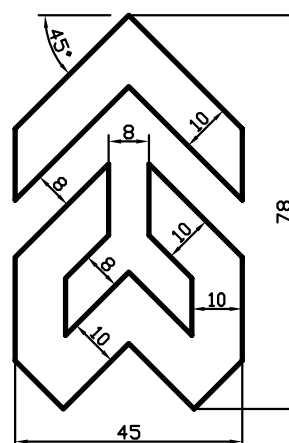
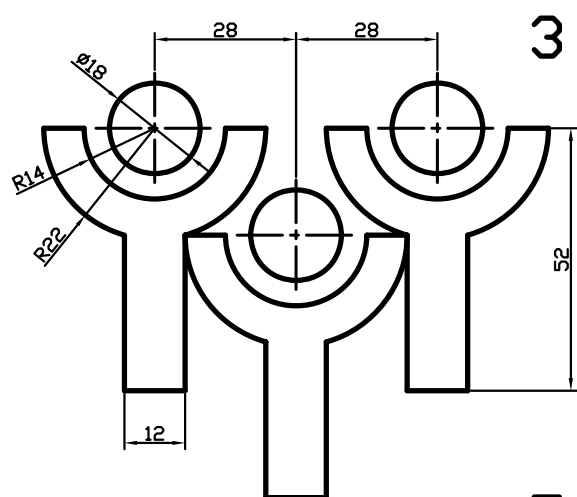
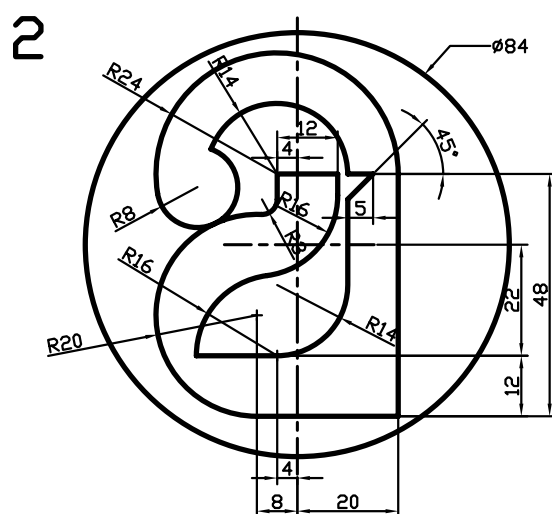
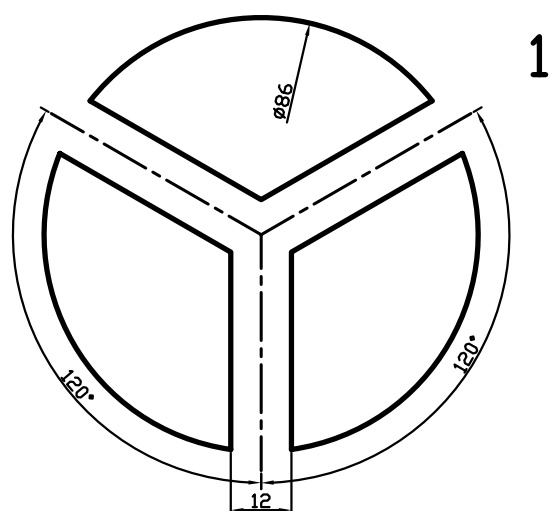
2

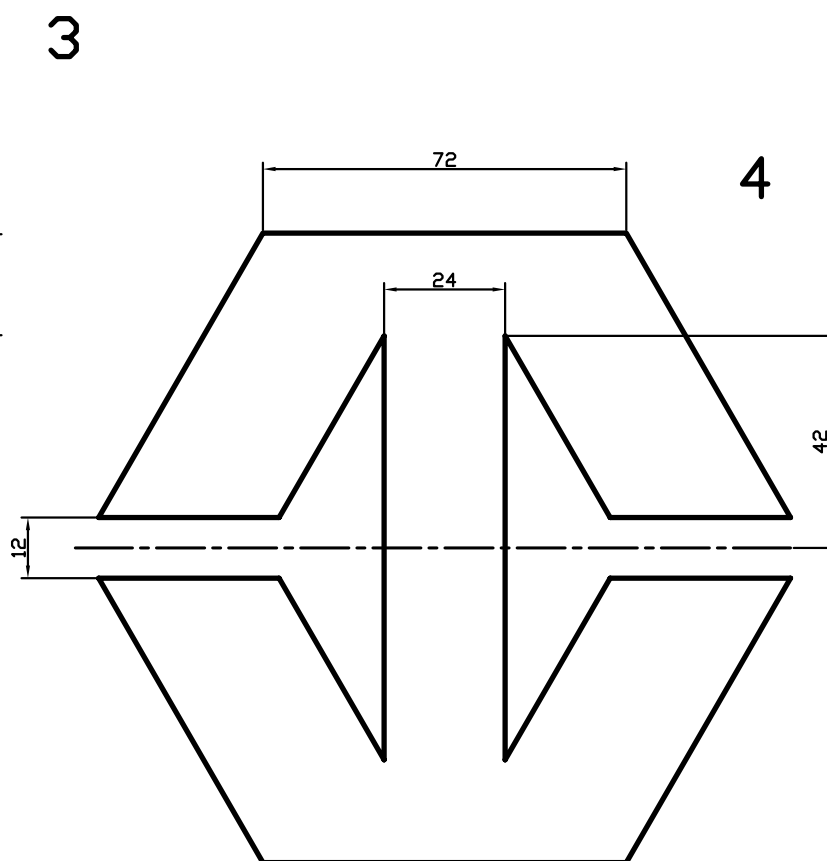
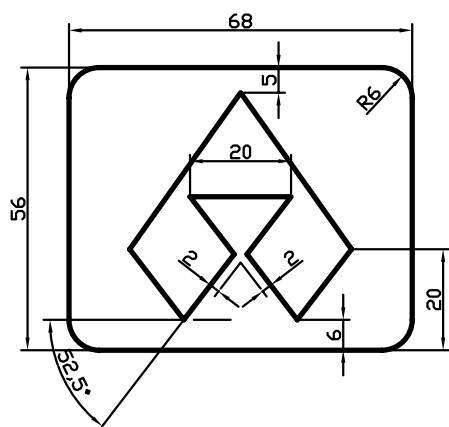
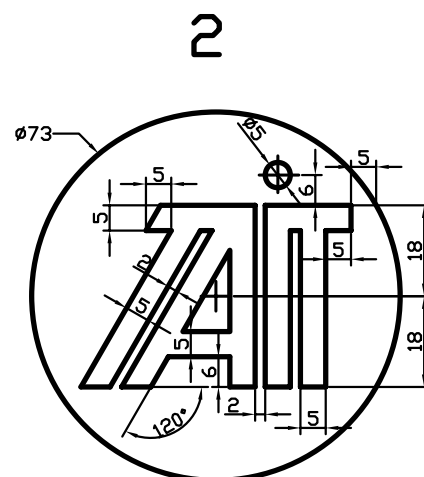
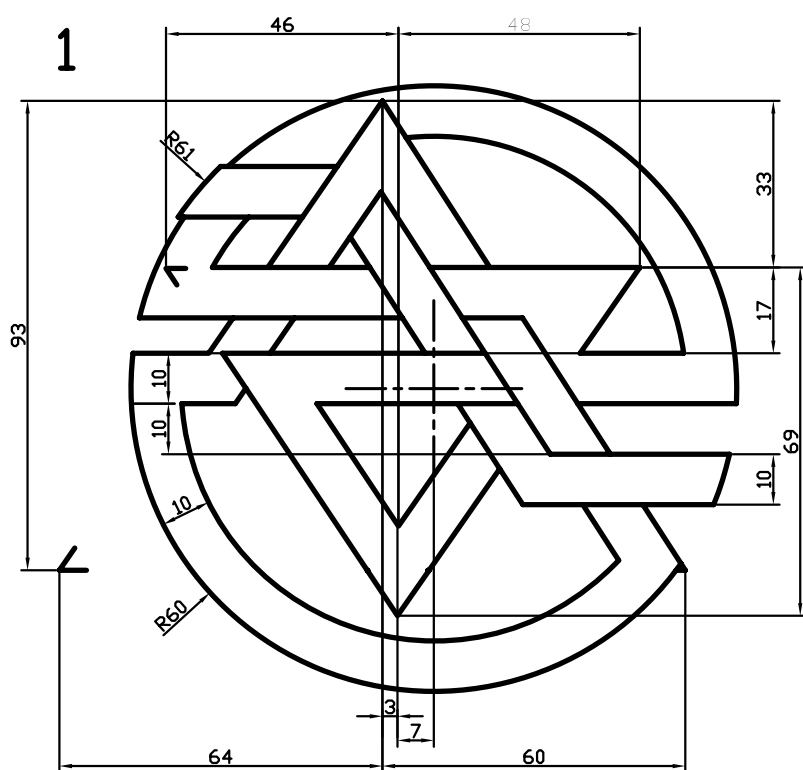


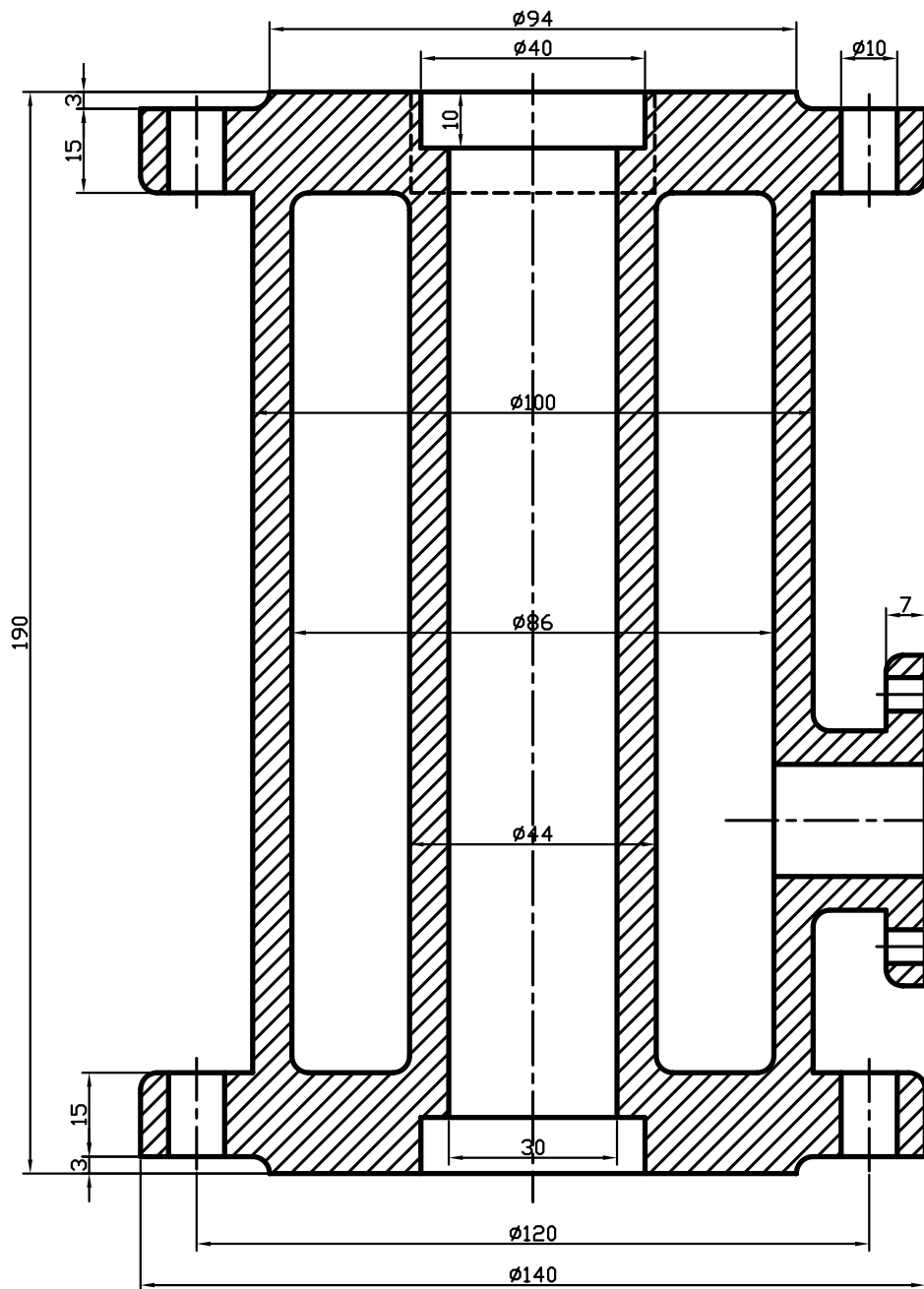
3



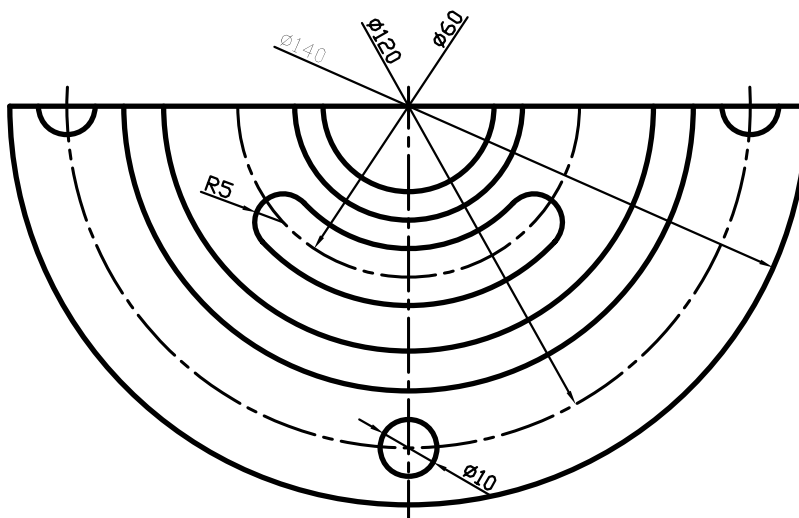
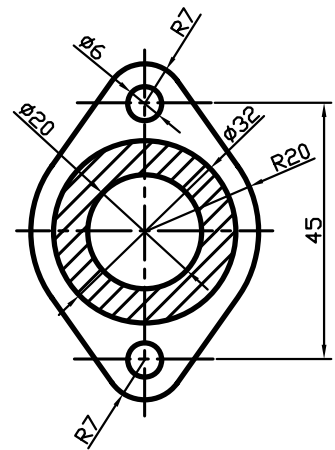
15

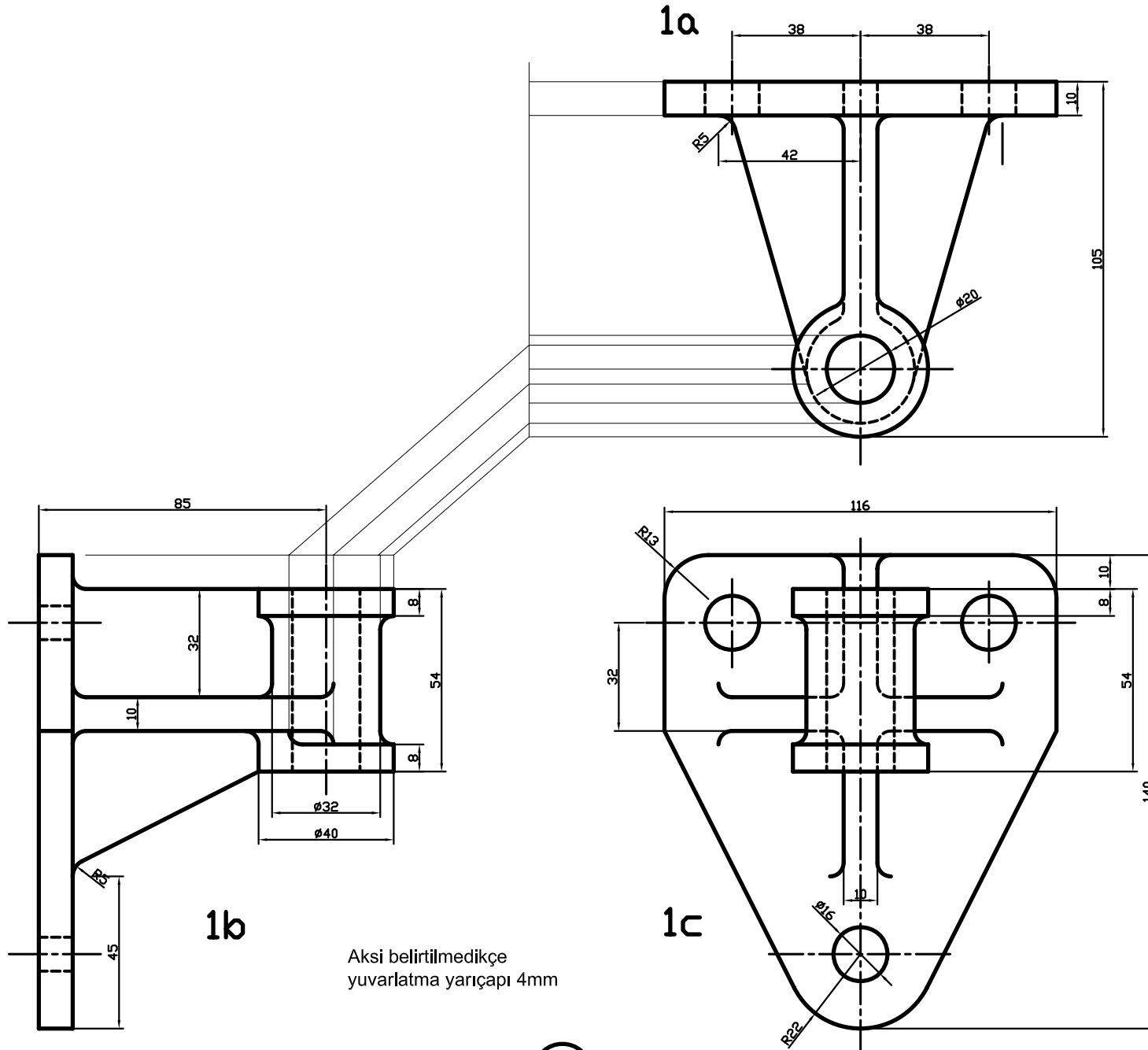


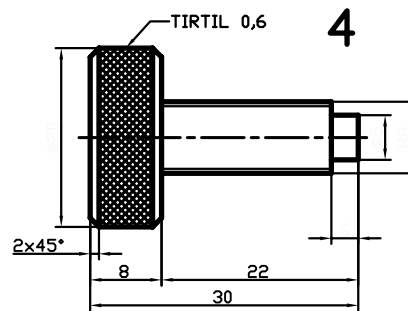
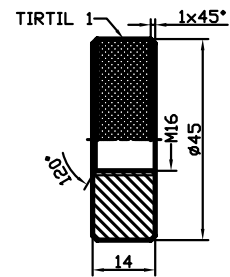
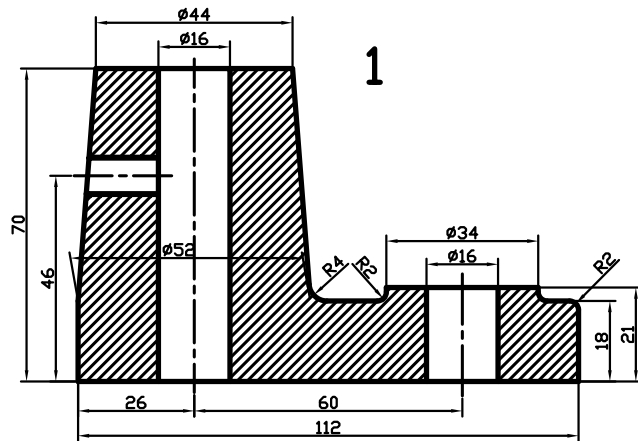




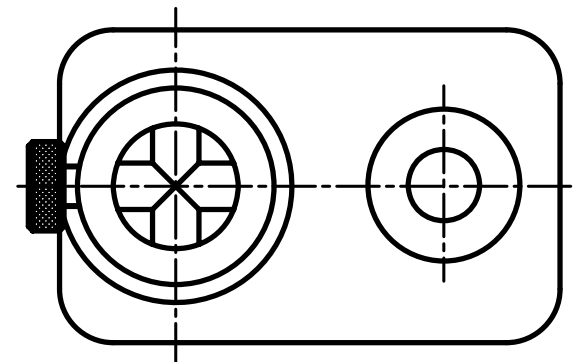
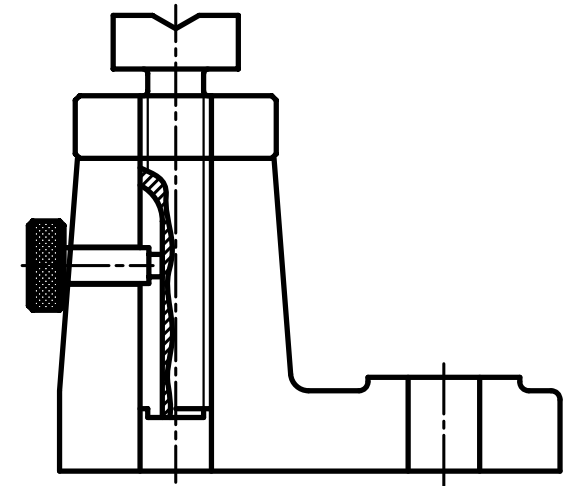
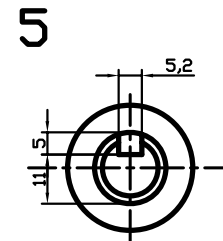
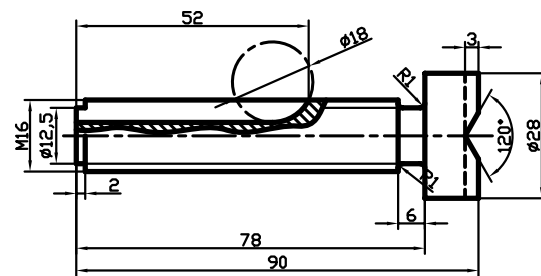
Tüm yuvarlatma yarıçapı değerleri 3 mm olacaktır.



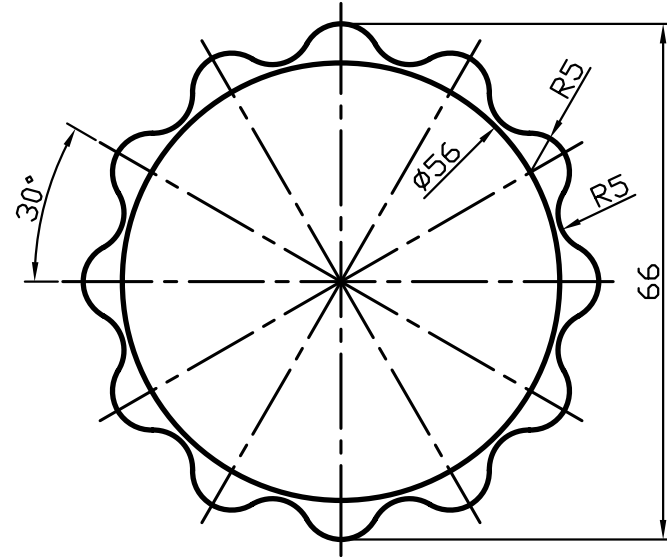
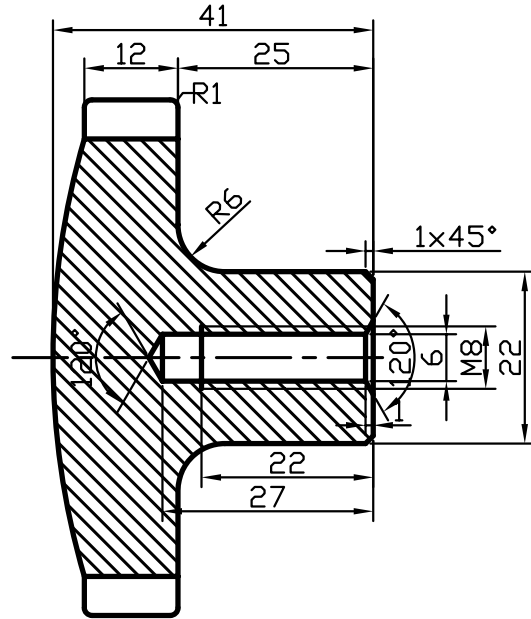
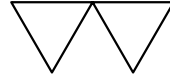




ÖLÇEK 2:1



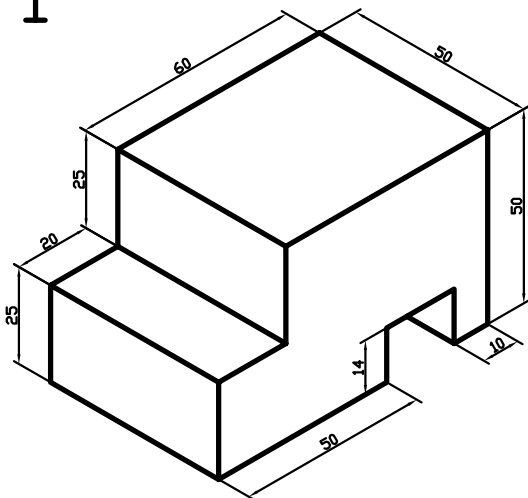
(20)



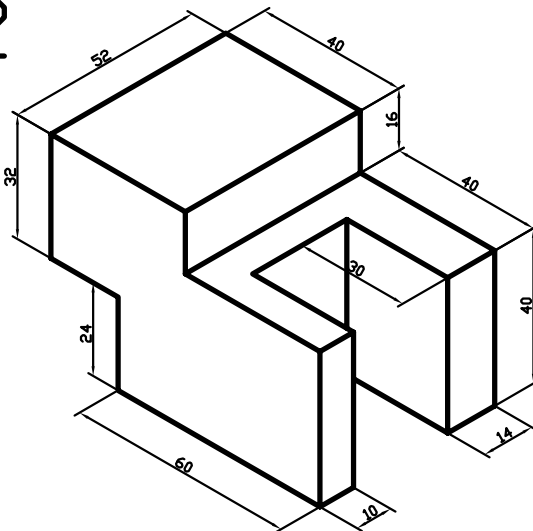
Not: Yapımdan sonra nikel kaplanır.

Ms 58	1:1	1	SIKMA KOLU	Abdullah KURT	189-09
Malzeme	Ölçek	Sayı	Parça Adı	Çizen	Resim No.

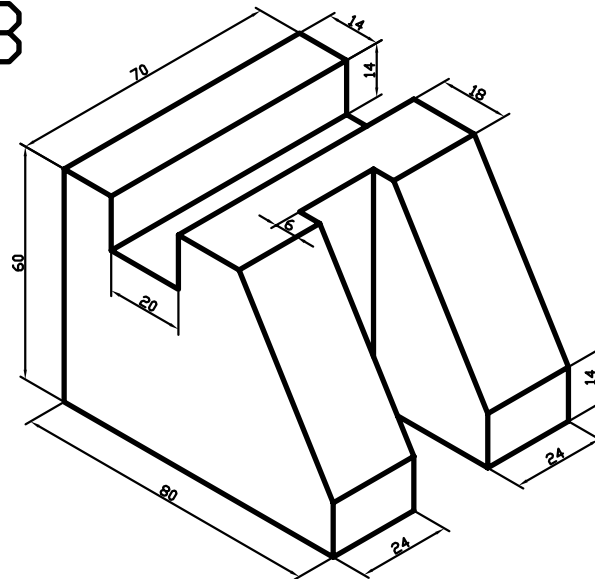
1



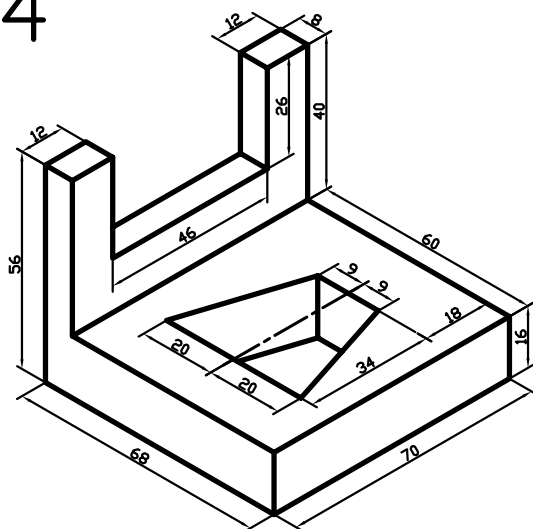
2



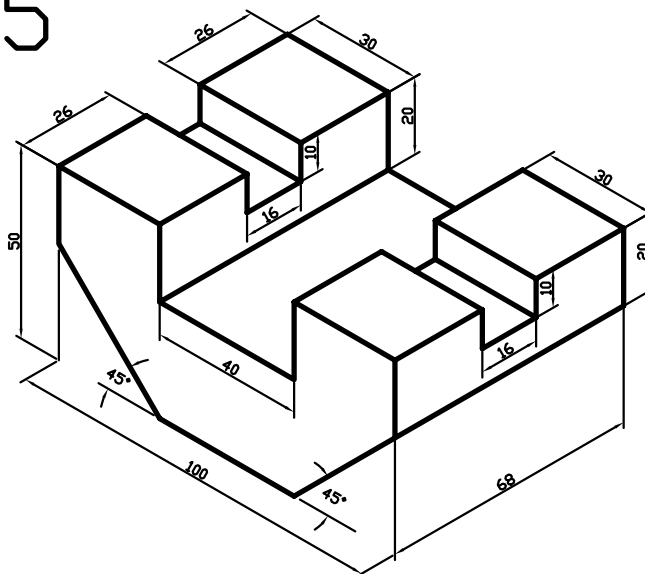
3



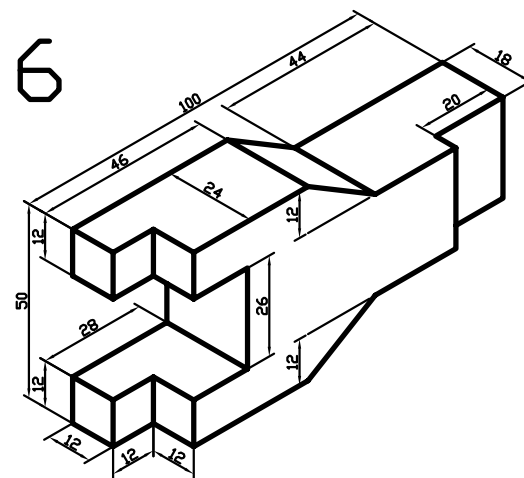
4

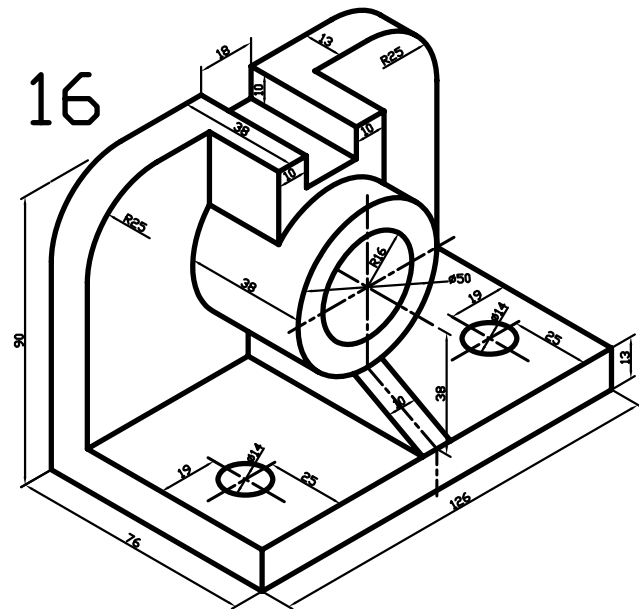
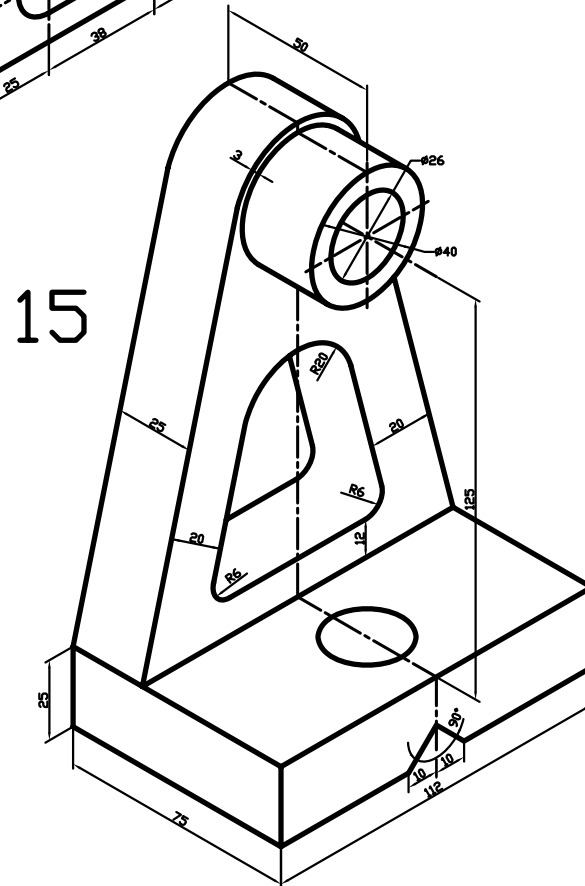
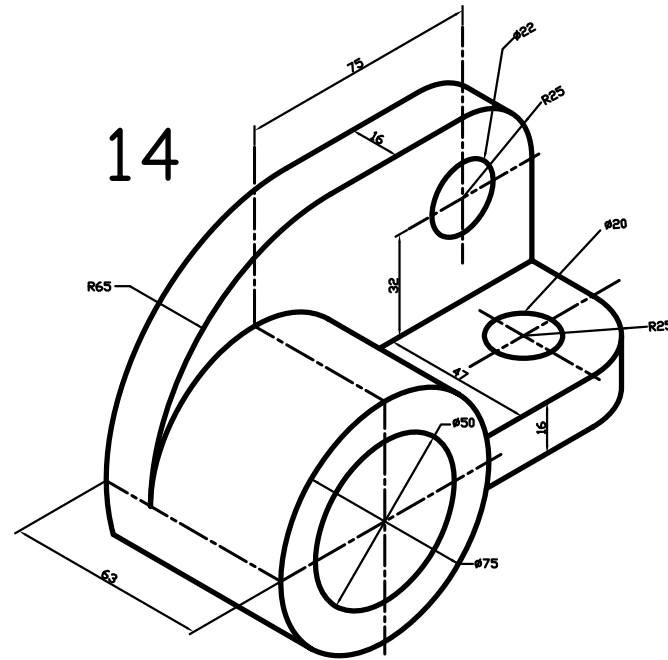
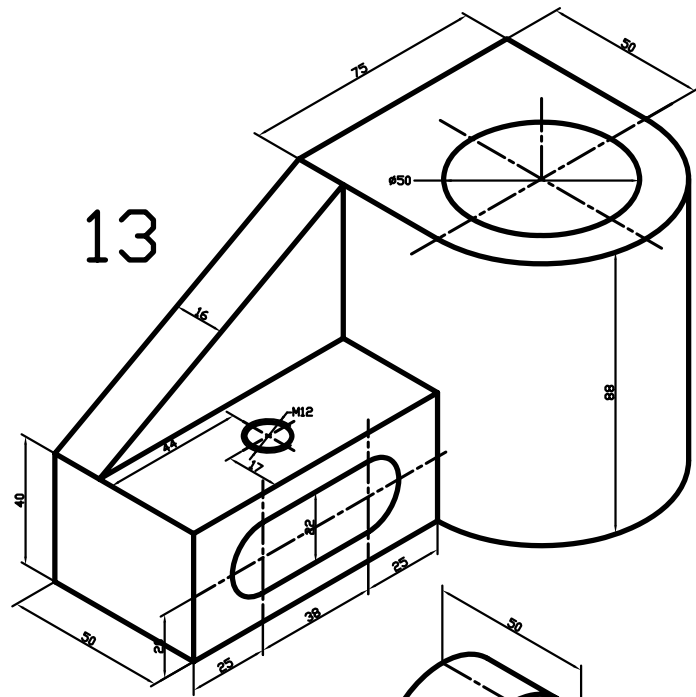


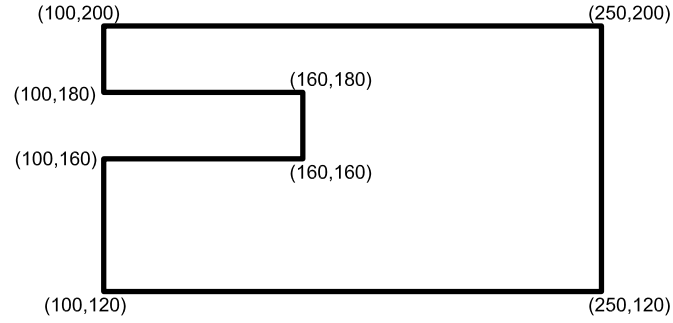
5



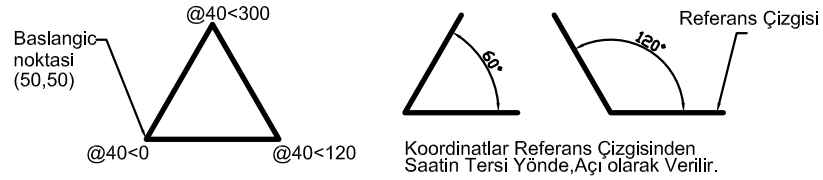
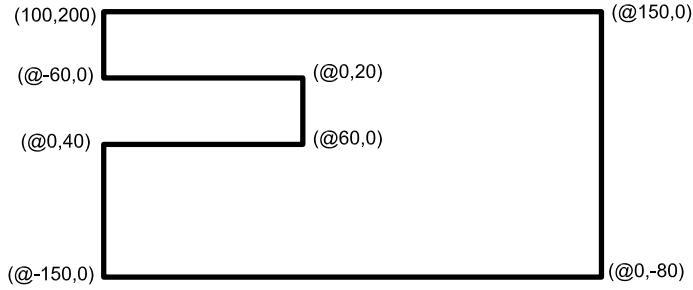
6



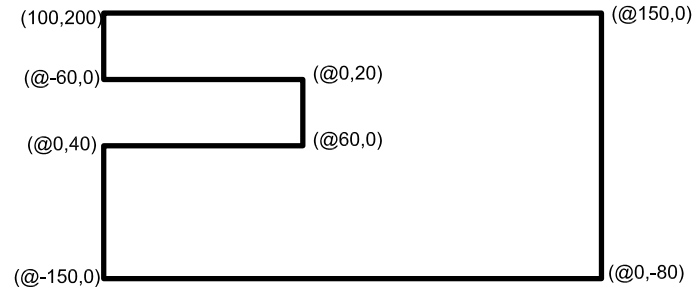




Klavyeden Koordinat Girerek Çizgi Çizmek - Mutlak Koordinat



Klavyeden Koordinat Girerek Çizgi Çizmek - Artışlı Koordinat



Klavyeden Koordinat Girerek Çizgi Çizmek - Artışlı Koordinat

Daire Çap 20
Merkez Koordinatı
(100,220)

(80,240)

(120,240)

Merkez Koordinatı
(290,220)

(270,240)

(310,240)

Başlangıç 1
(80,200)

(120,220)

(270,220)

(120,200)

(270,200)

(100,160)

(290,160)

Başlangıç 2
(80,120)

(120,120)

(270,120)

(120,100)

(270,100)

(80,80)

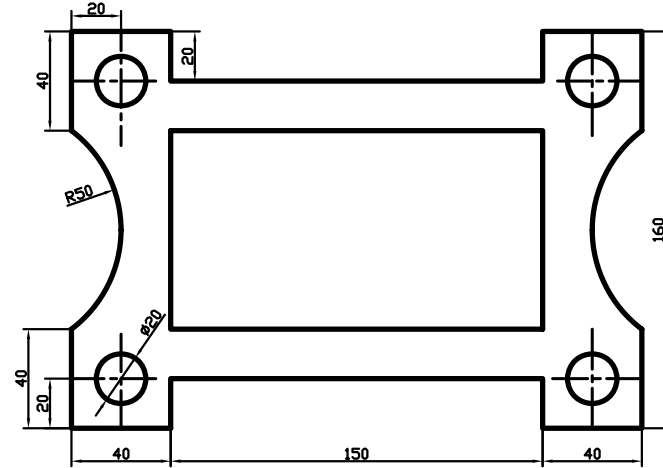
(120,80)

(270,80)

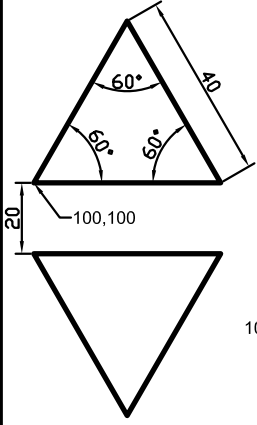
(310,80)

(100,100)
Merkez Koordinatı

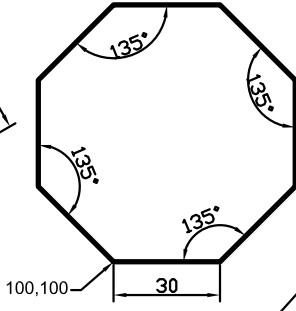
(290,100)
Merkez Koordinatı



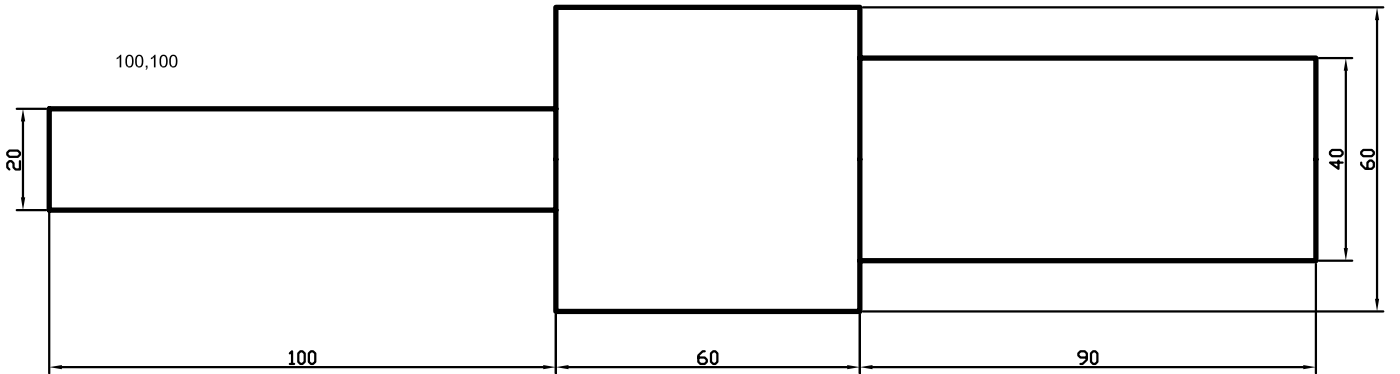
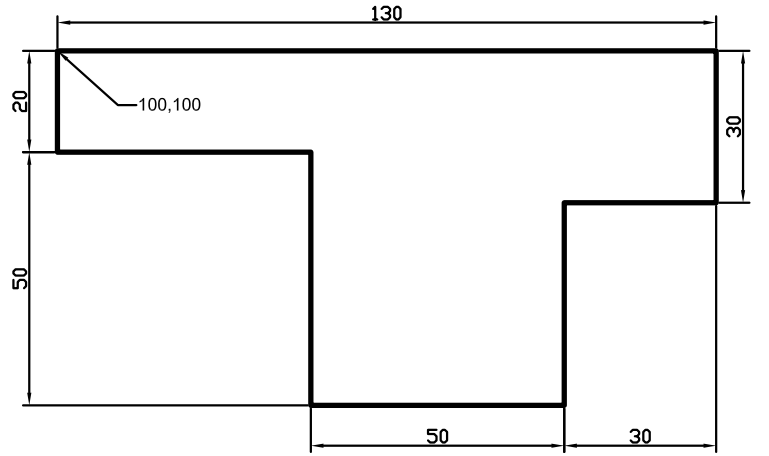
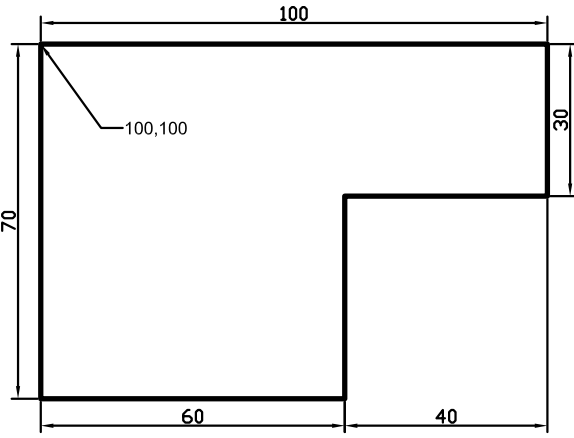
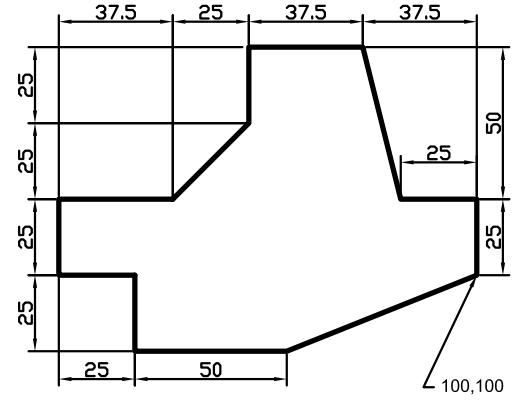
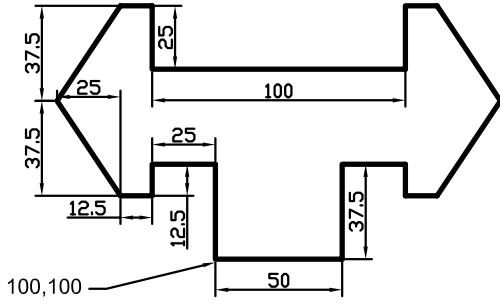
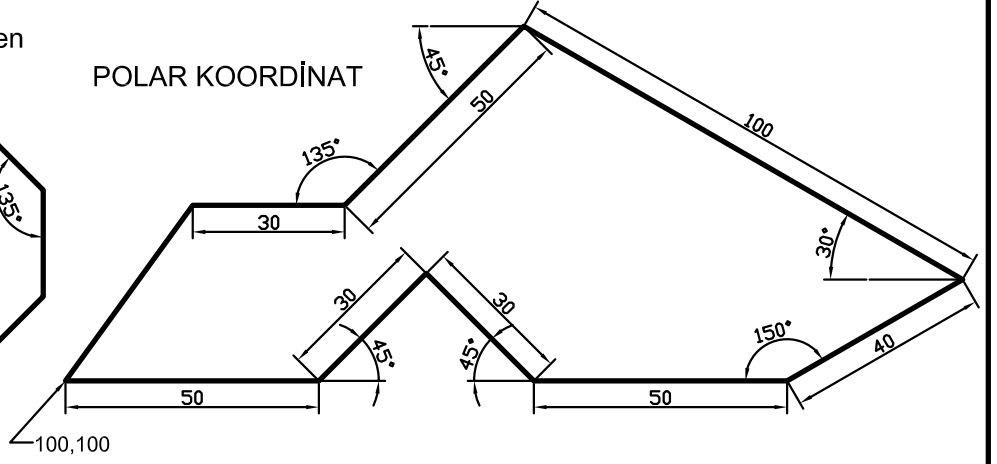
Eşkenar üçgen

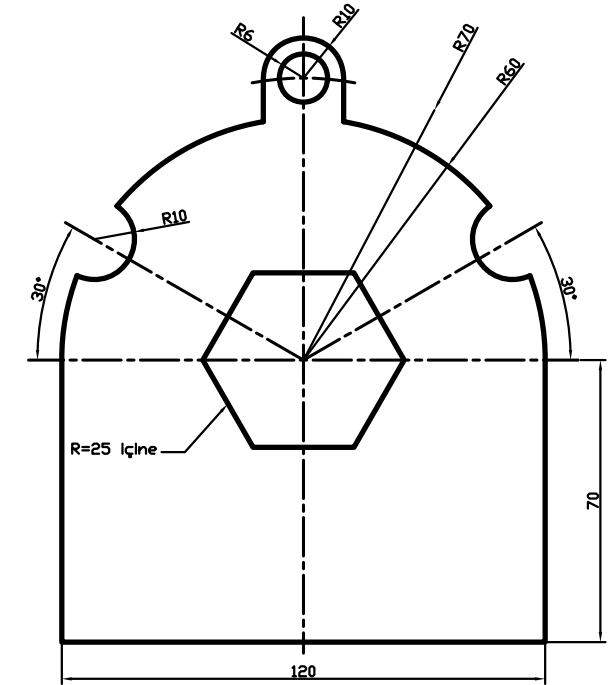
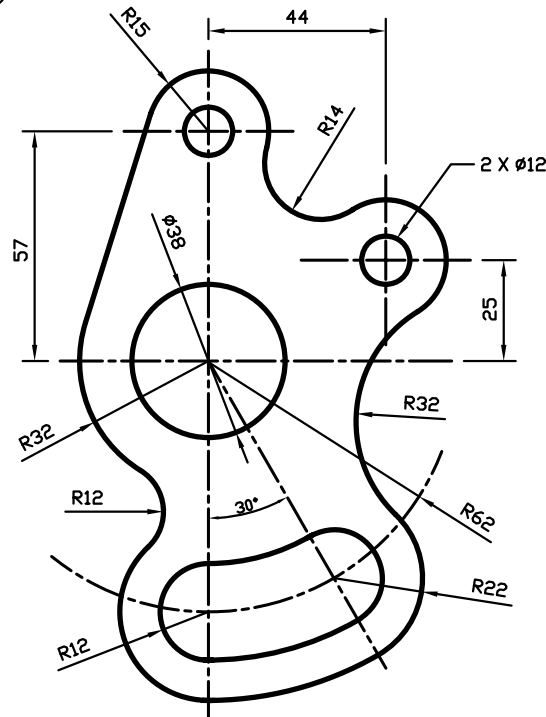
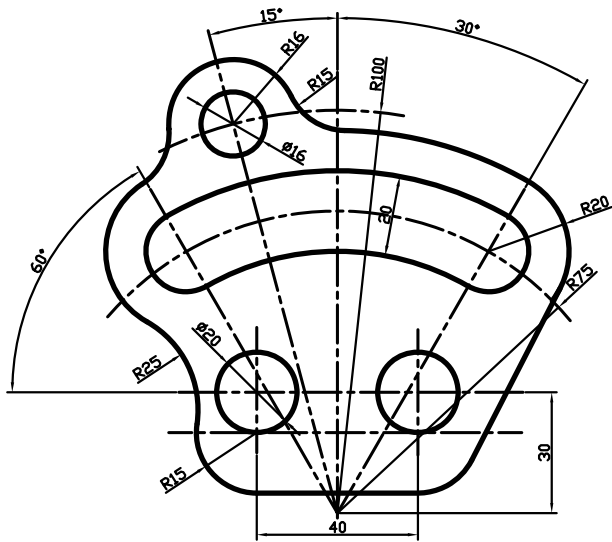
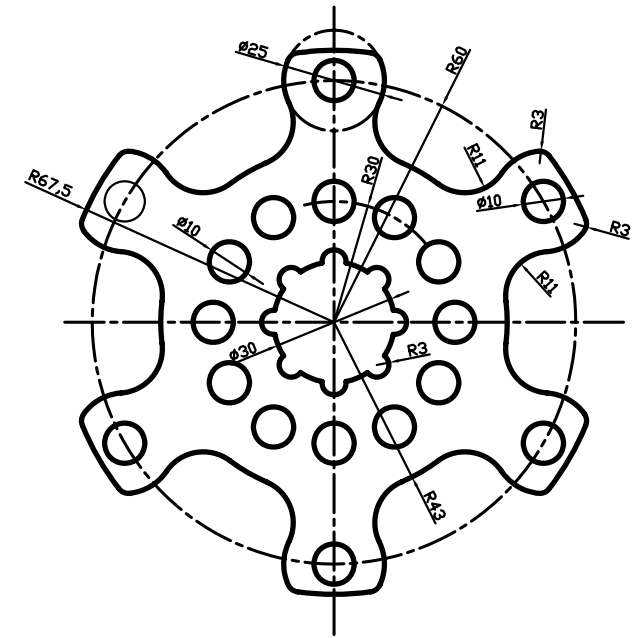
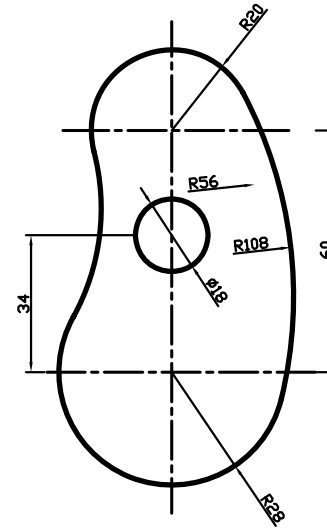
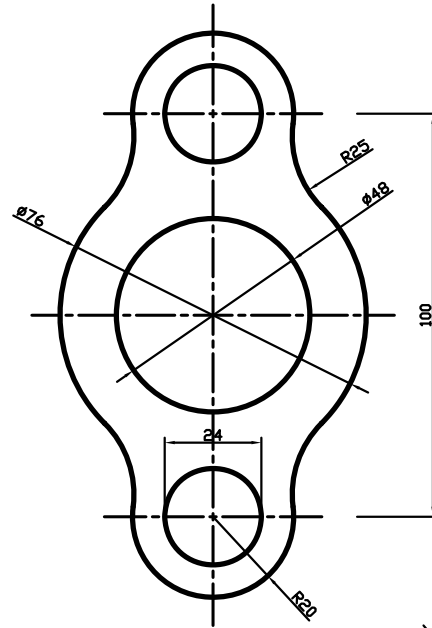
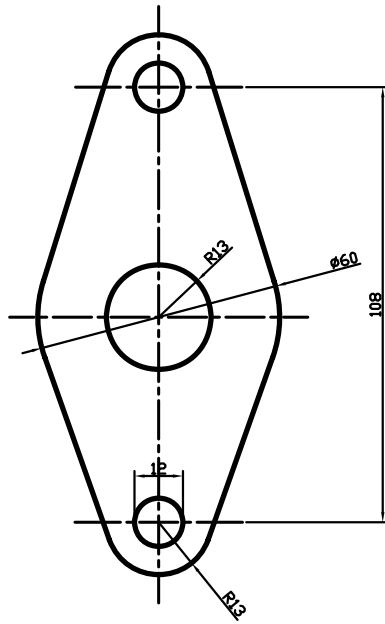


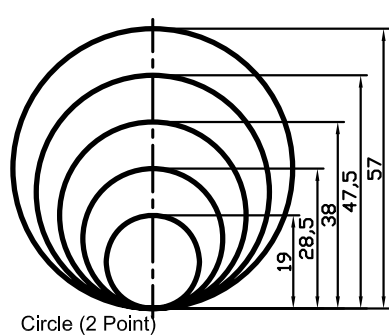
Düzgün Sekizgen



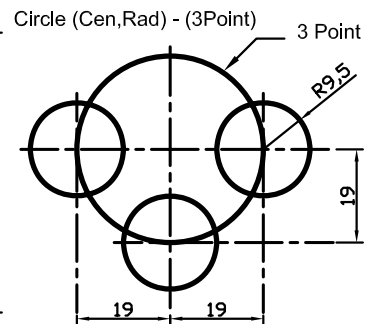
POLAR KOORDİNAT







Circle (2 Point)



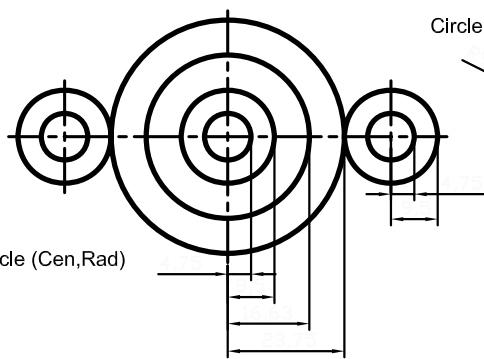
Circle (Cen,Rad) - (3Point)

3 Point

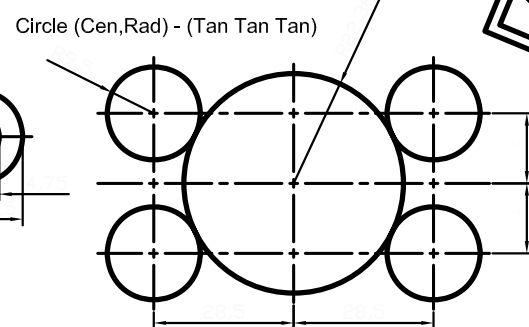
R9,5

19

19

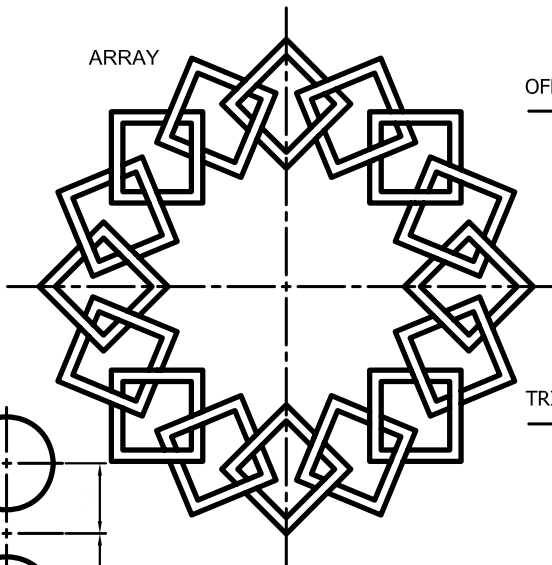


Circle (Cen,Rad)

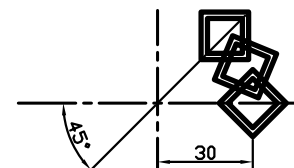


Circle (Cen,Rad) - (Tan Tan Tan)

ARRAY

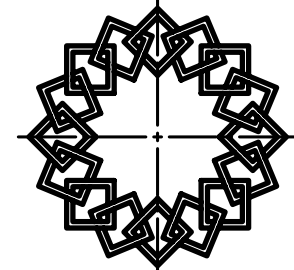


OFFSET



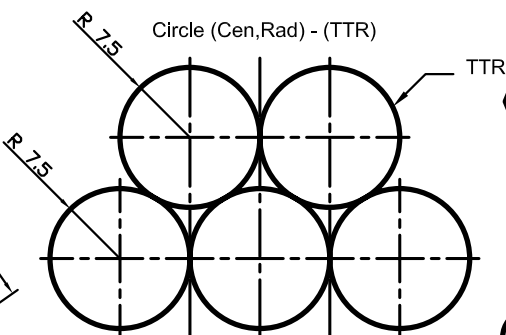
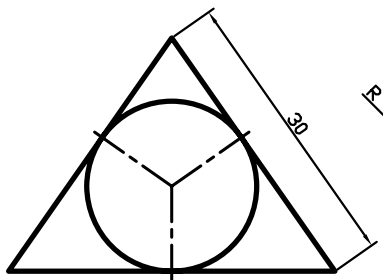
POLAR ARRAY (45° ETRAFINDA 3 TANE)

TRIM



POLAR ARRAY (360° ETRAFINDA 16 TANE)

Line - Circle (Tan Tan Tan)

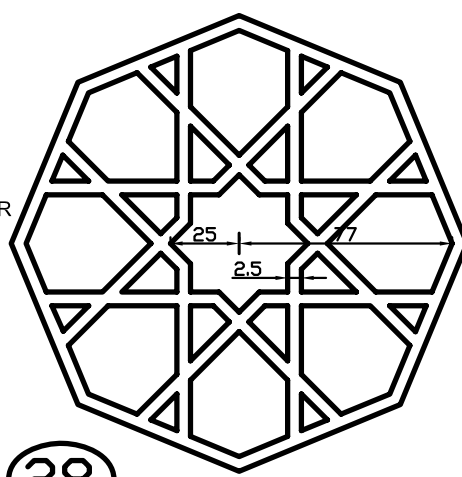


Circle (Cen,Rad) - (TTR)

TTR

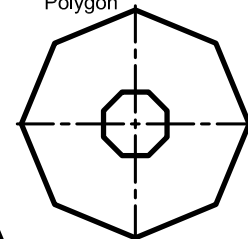
R 7,5

R 7,5

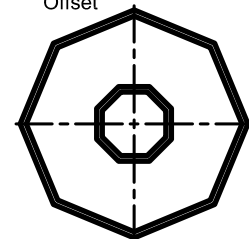


28

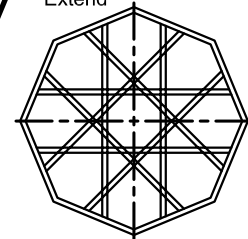
Polygon



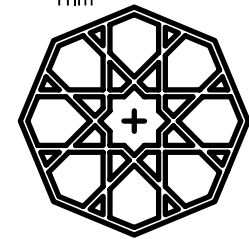
Offset



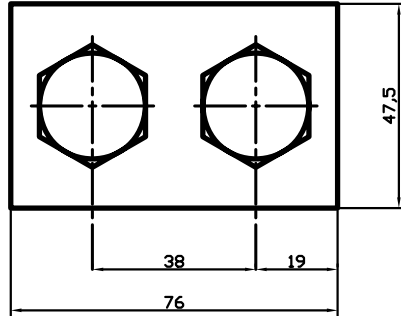
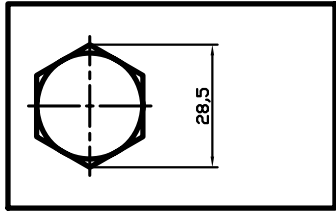
Extend



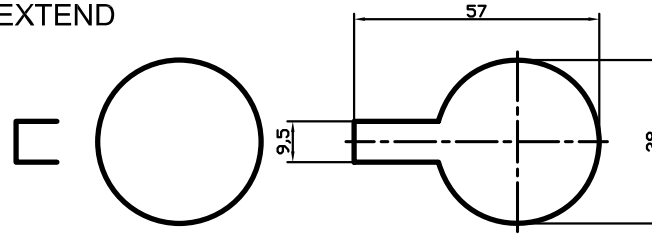
Trim



COPY

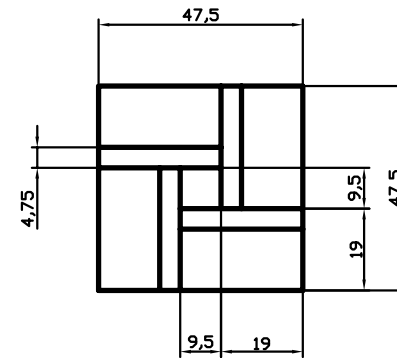
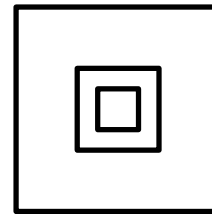
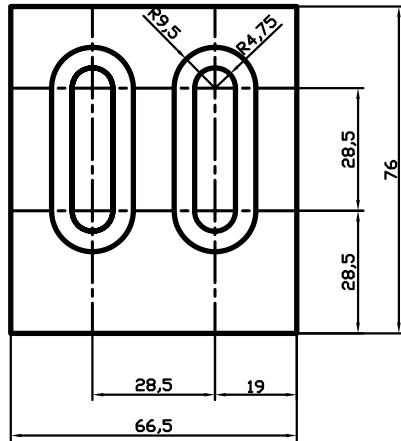
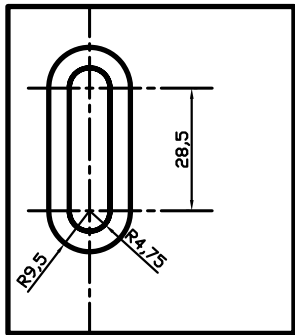
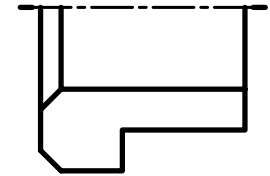


EXTEND

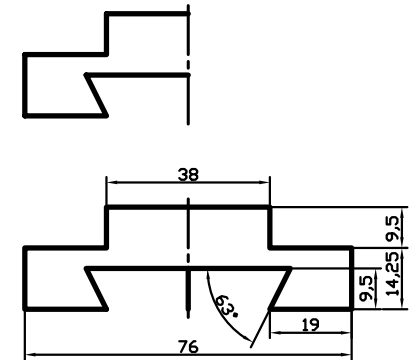
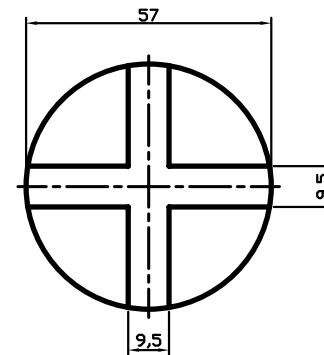
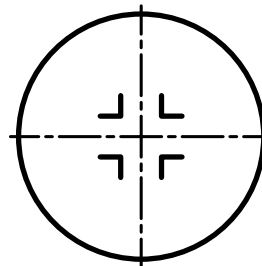
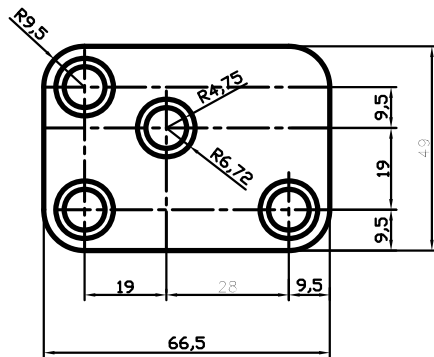
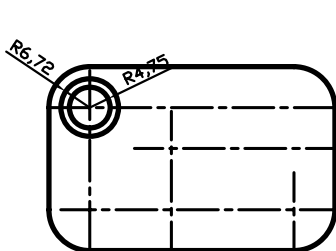
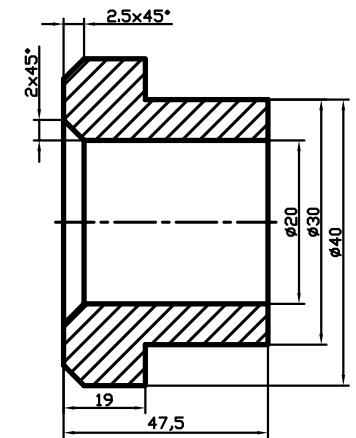


Extend – Trim

MIRROR

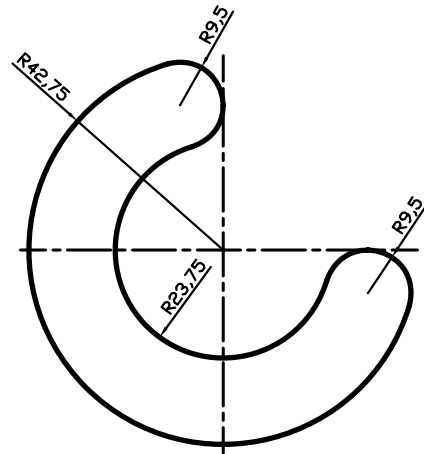
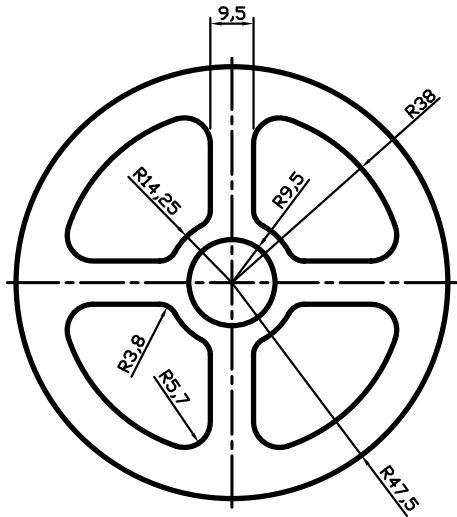
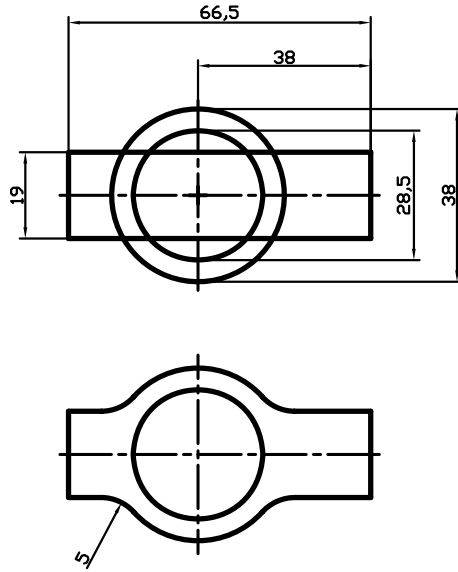
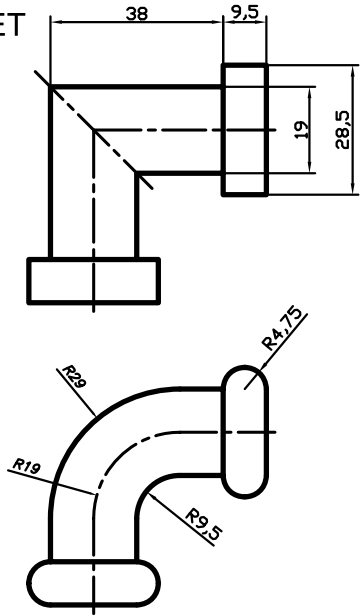


Extend – Trim

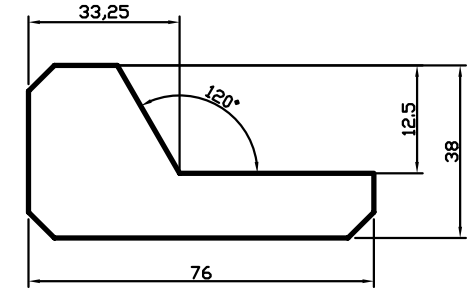
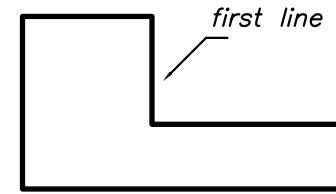


29

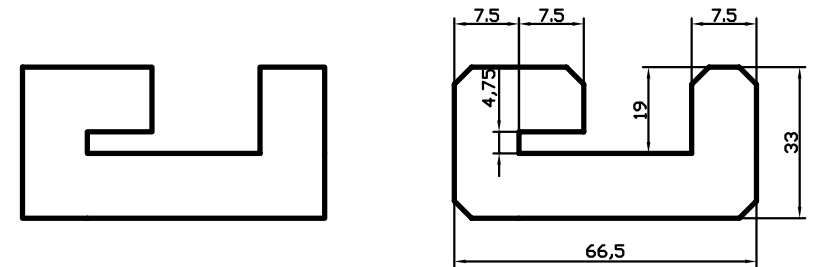
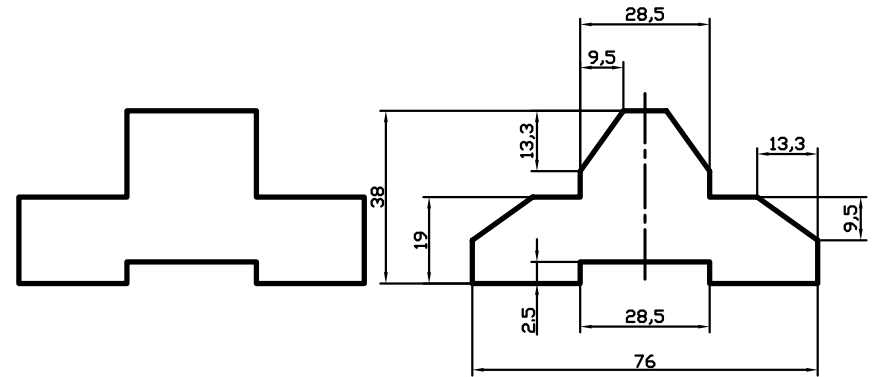
FILLET



CHAMFER

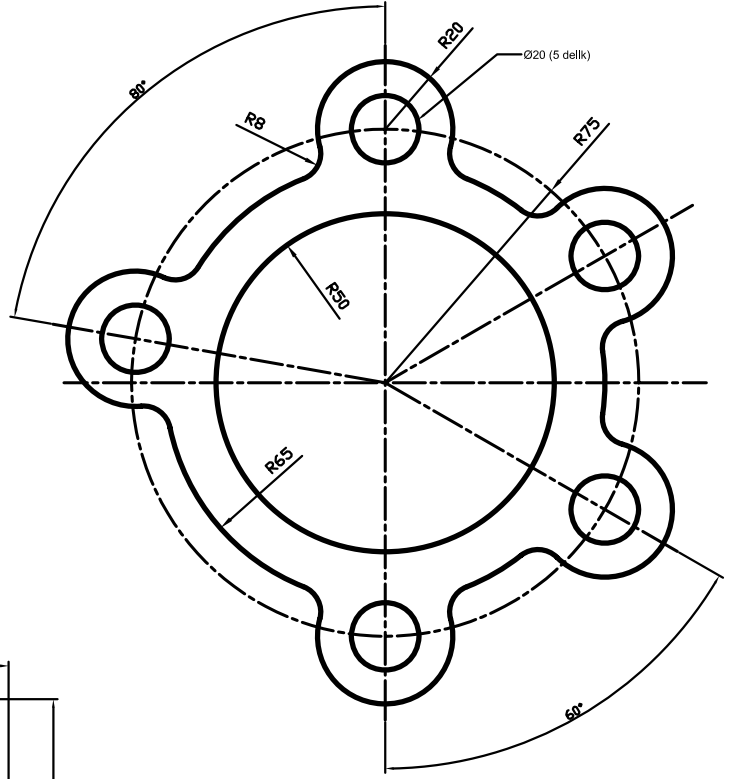
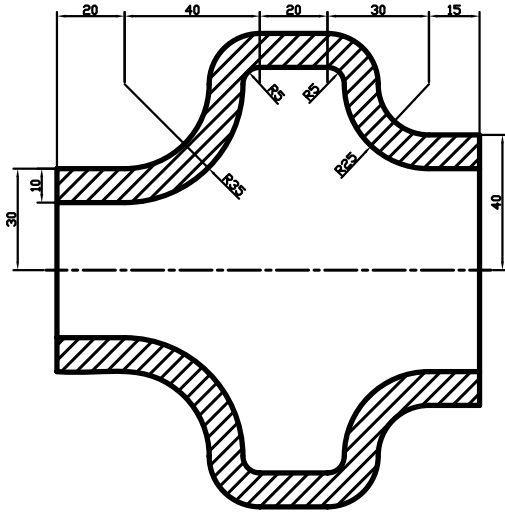


Bütün pah ölçüleri 3x3

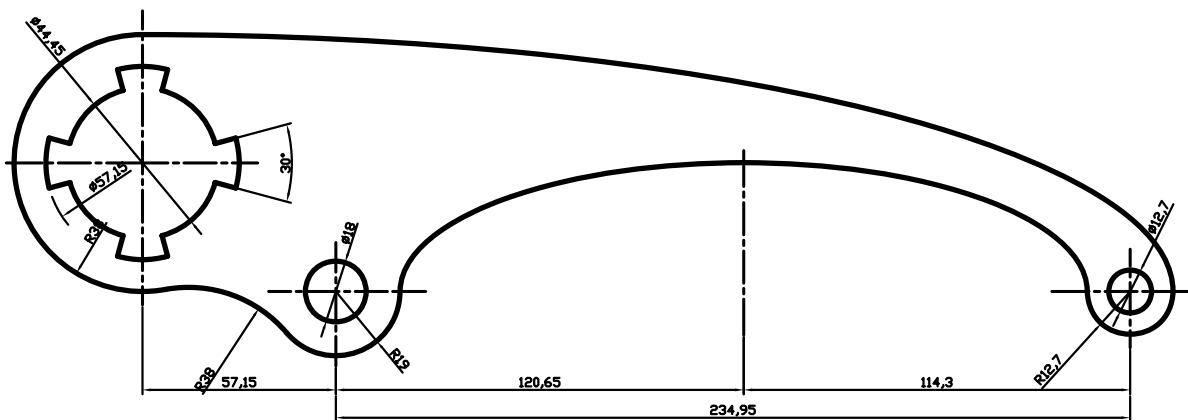
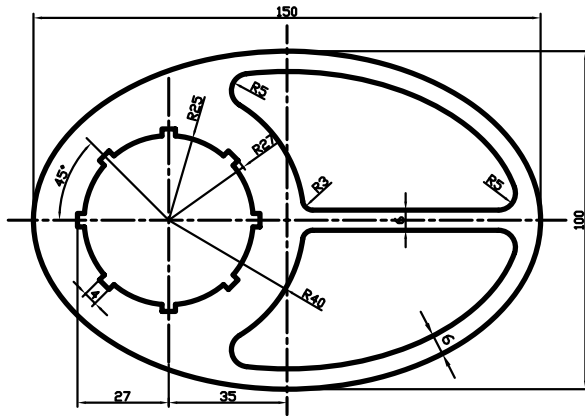


Bütün pah ölçüleri 2x2

Offset ve Mirror Alıştırması

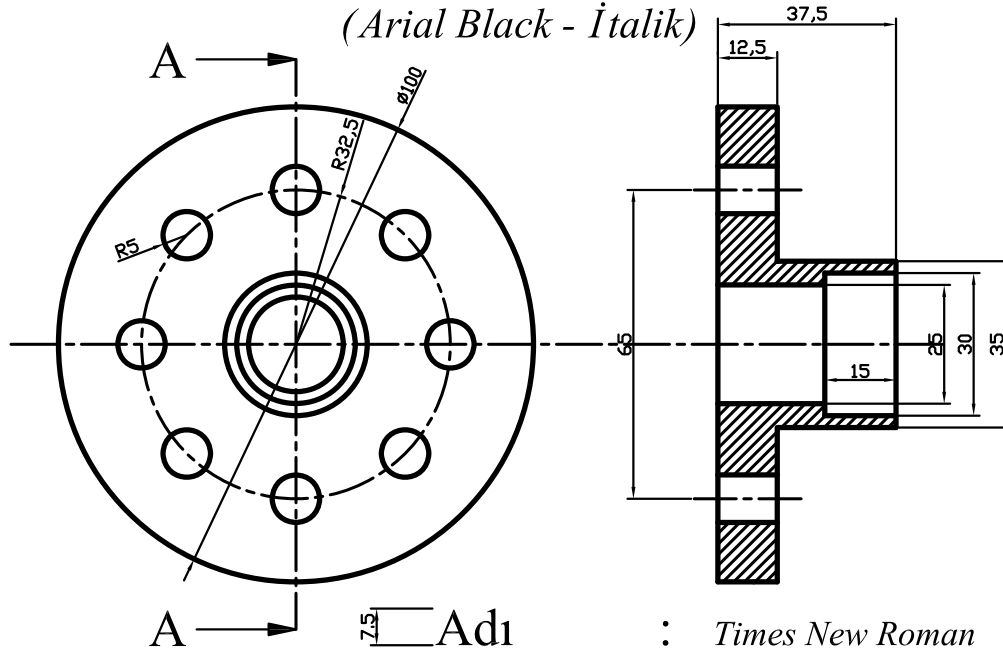


ELİPS Uygulaması



GAZİ ÜNİVERSİTESİ BELTEK AUTO-CAD KURSU

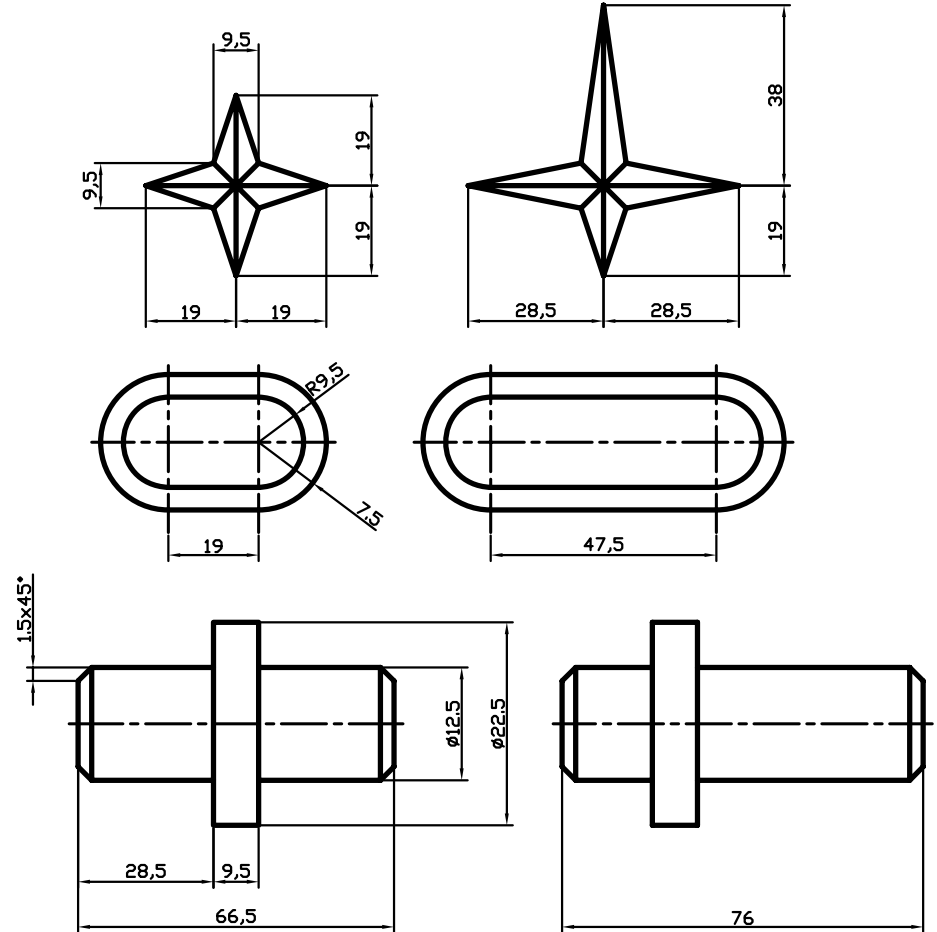
(Arial Black - İtalik)



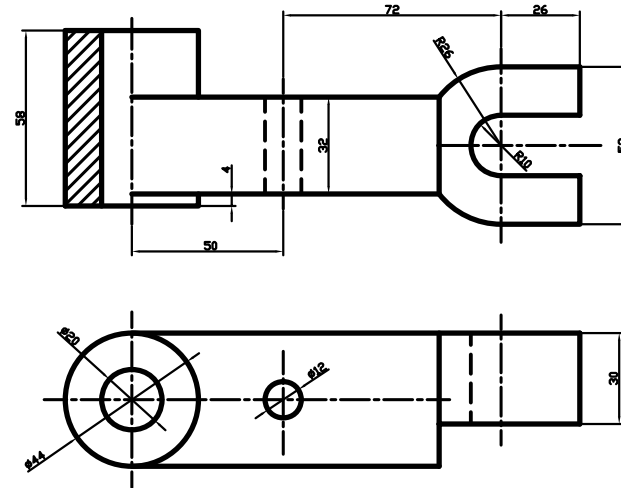
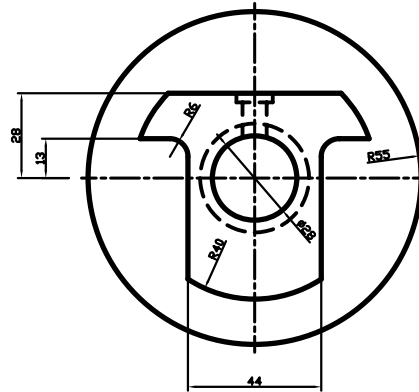
32

Adı : Times New Roman
Soyadı :
Okul No :

STRETCH

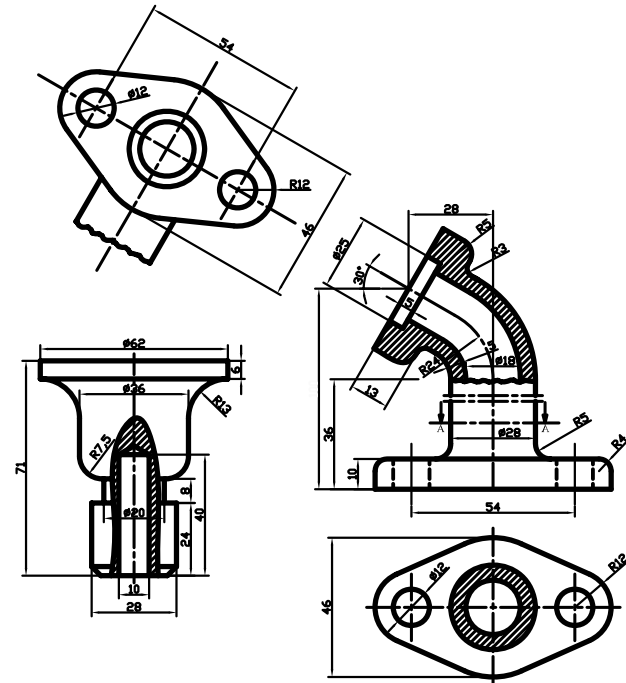
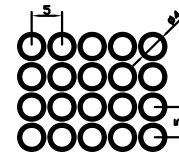
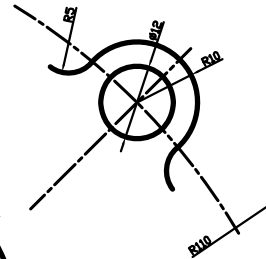
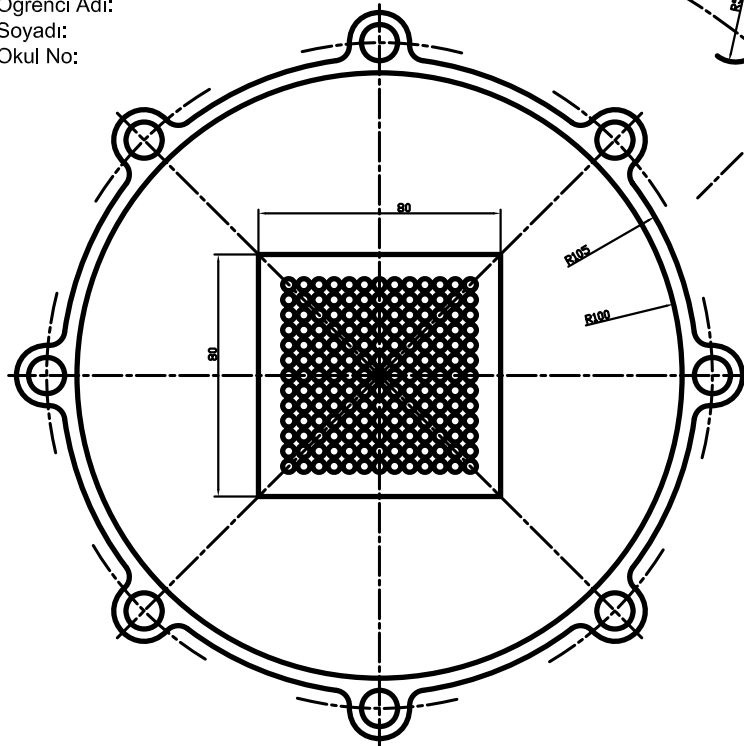


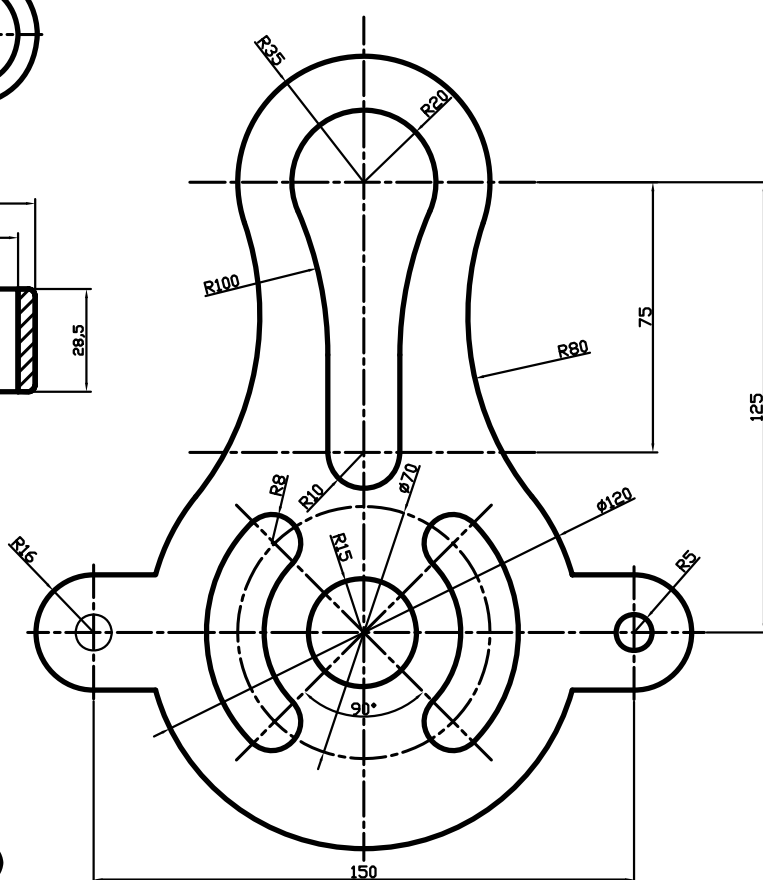
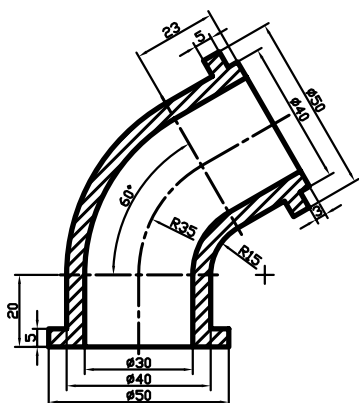
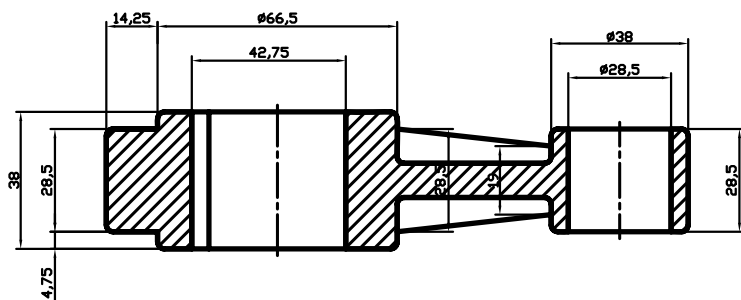
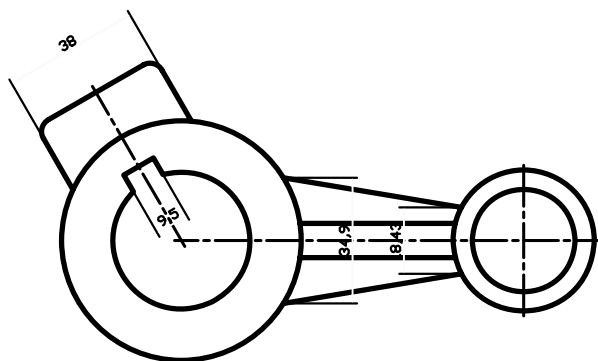
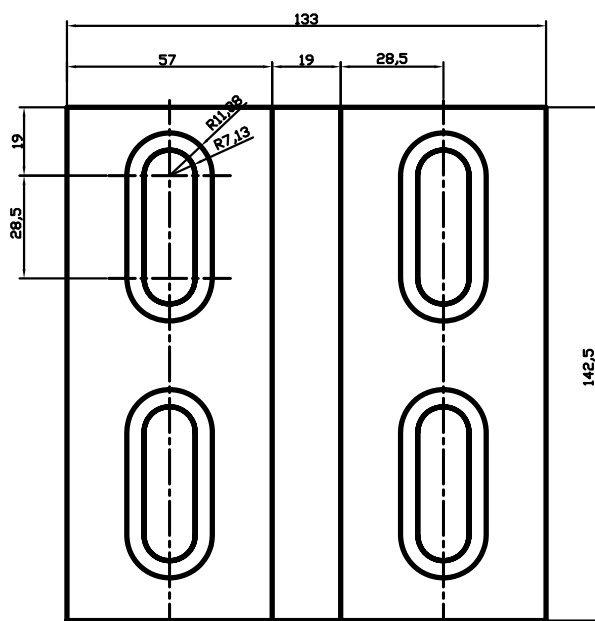
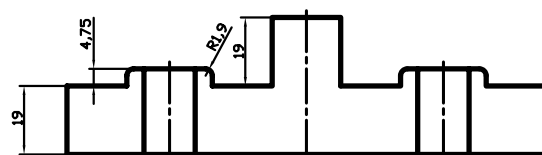
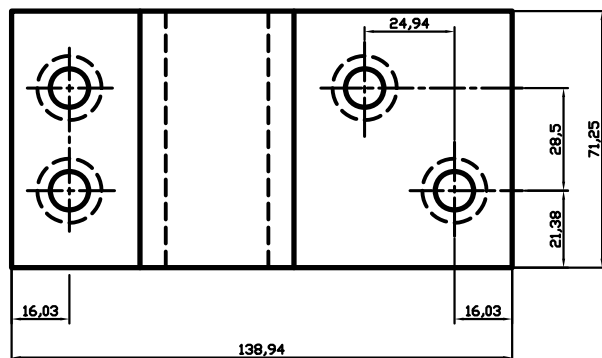
३।



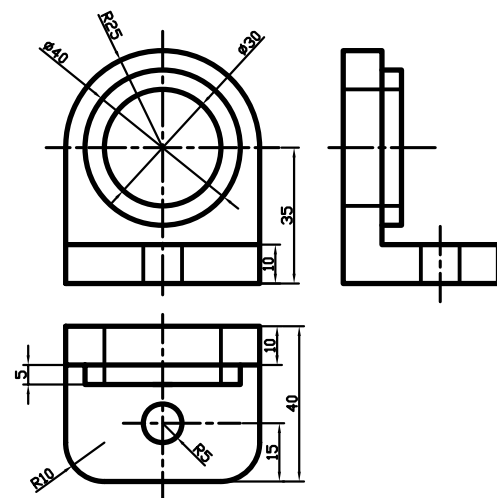
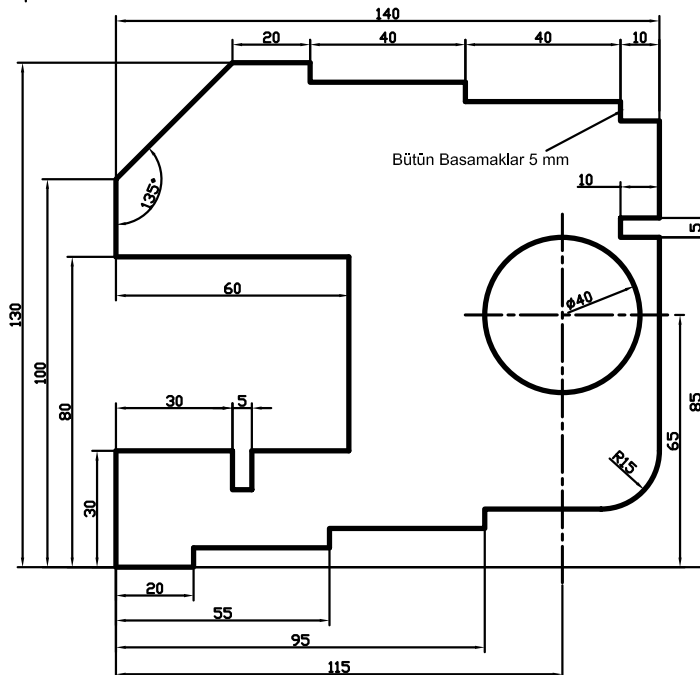
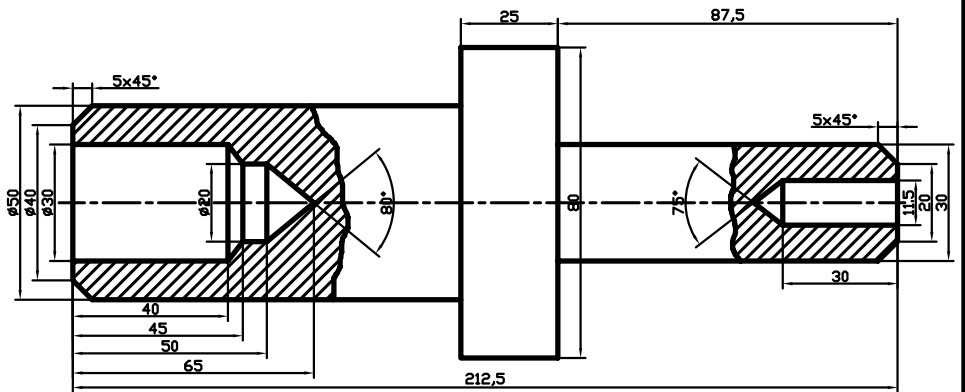
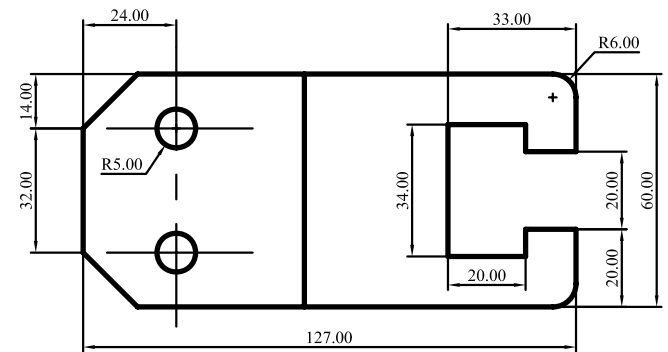
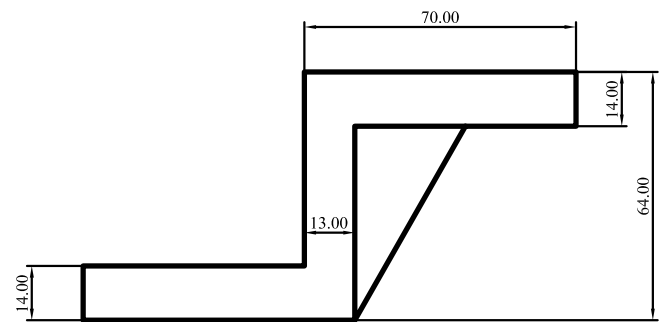
10

51

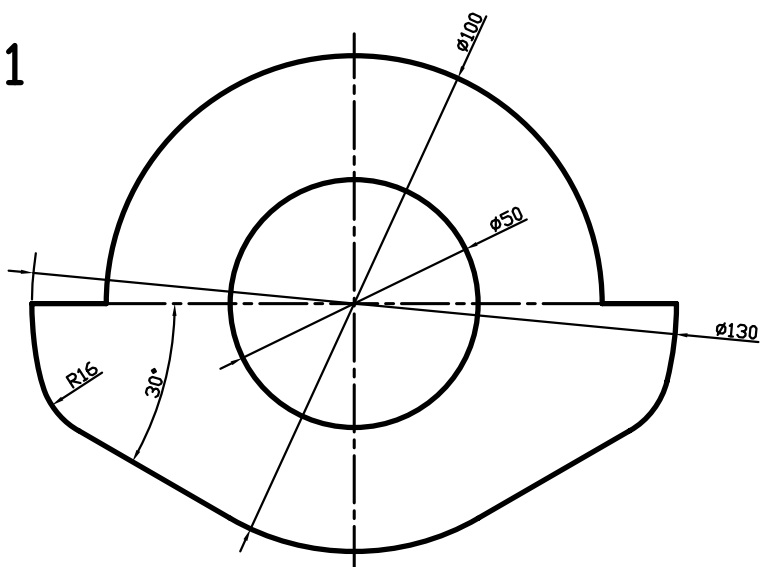




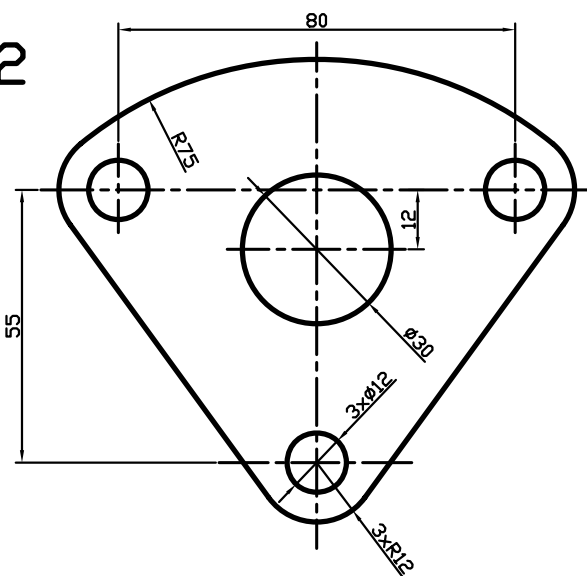
34



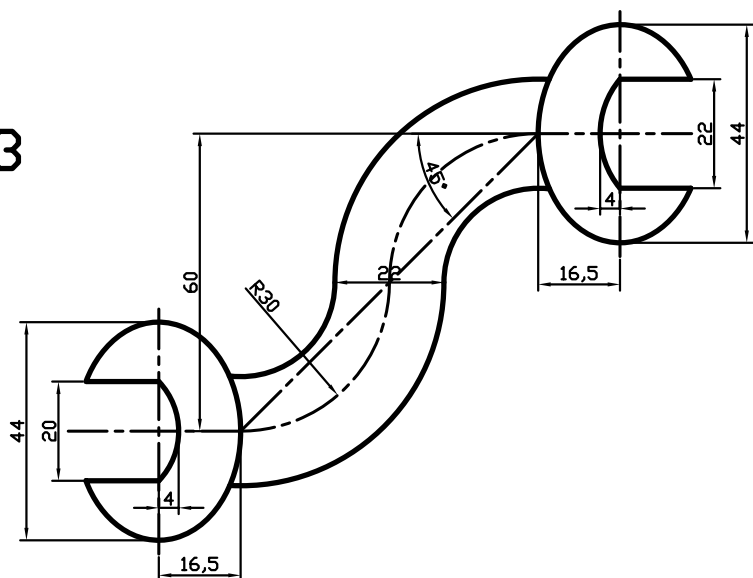
1



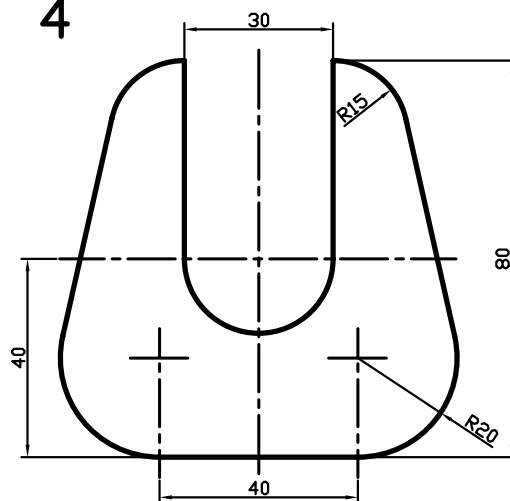
2



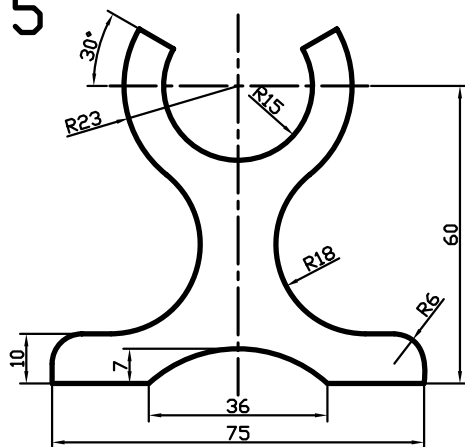
3



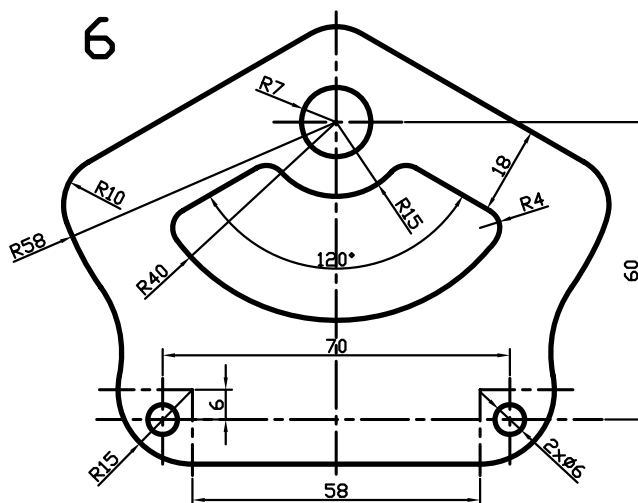
4



5

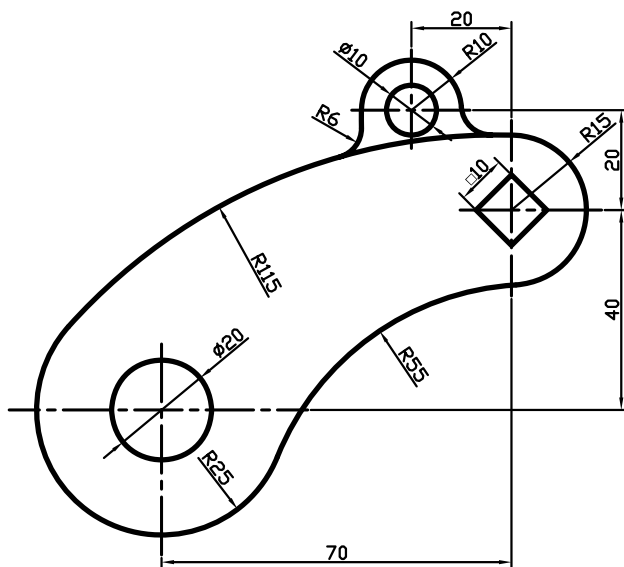


6

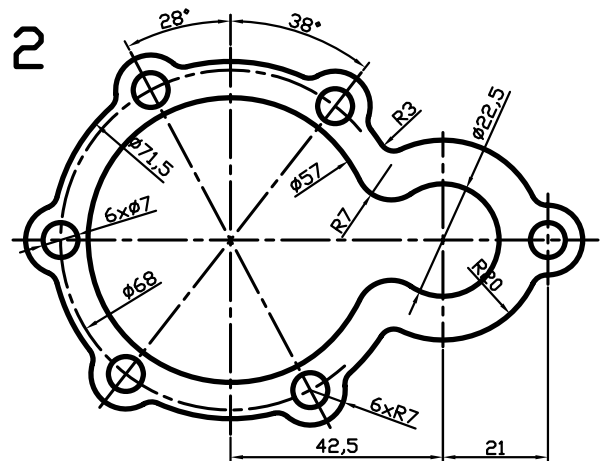


(36)

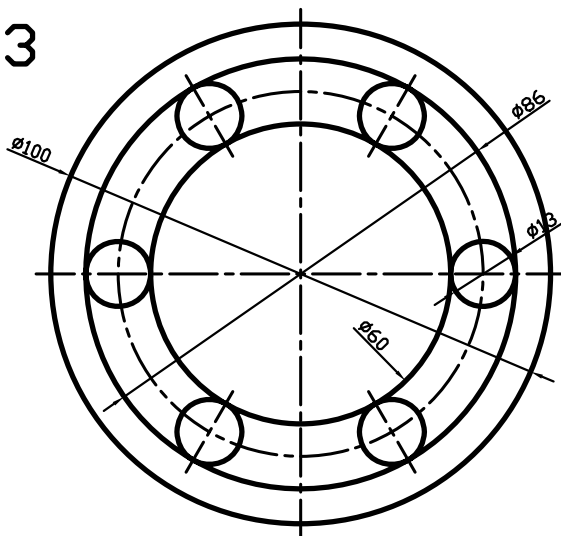
1



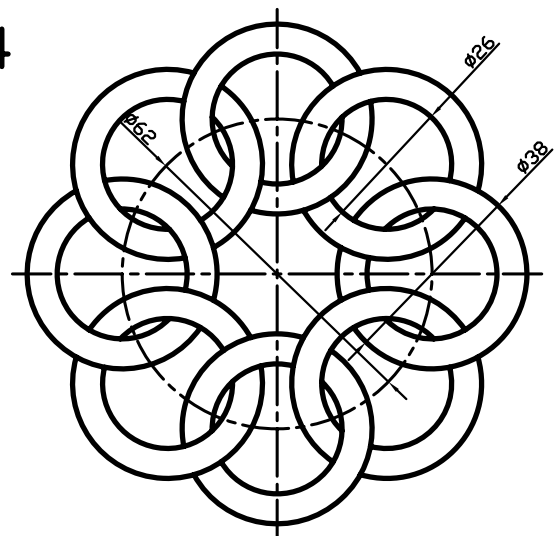
2



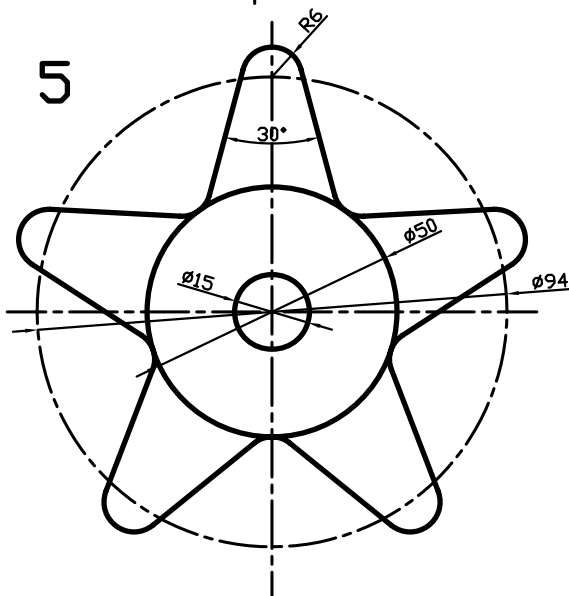
3



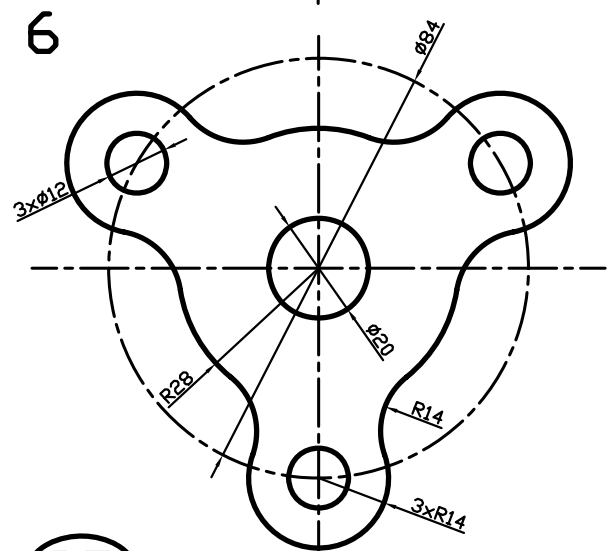
4



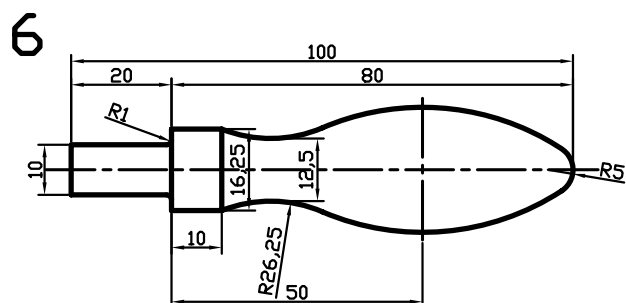
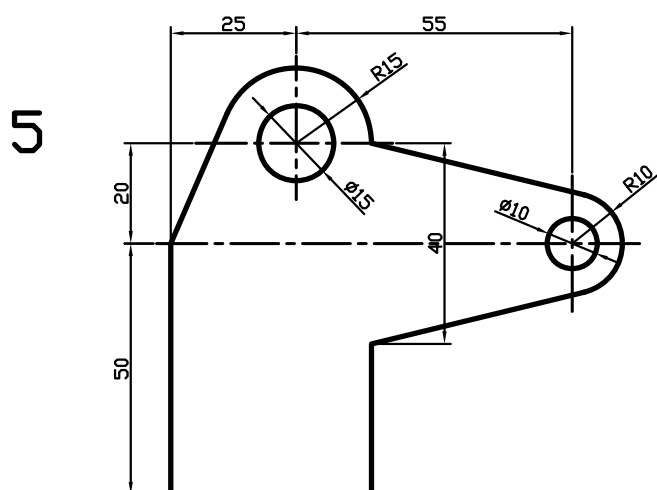
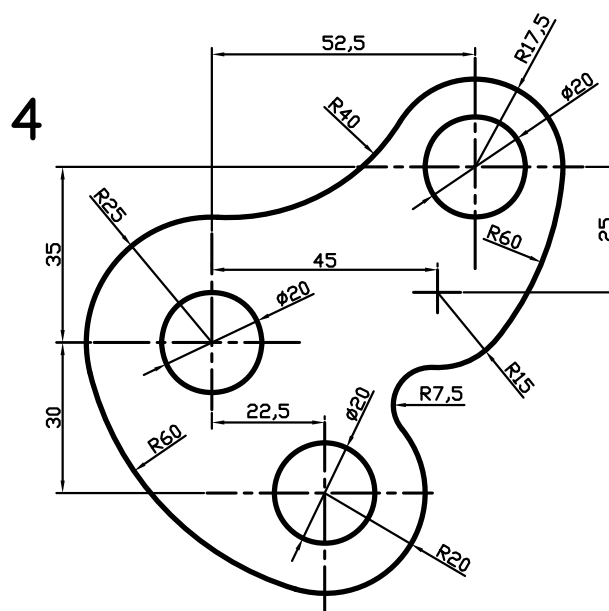
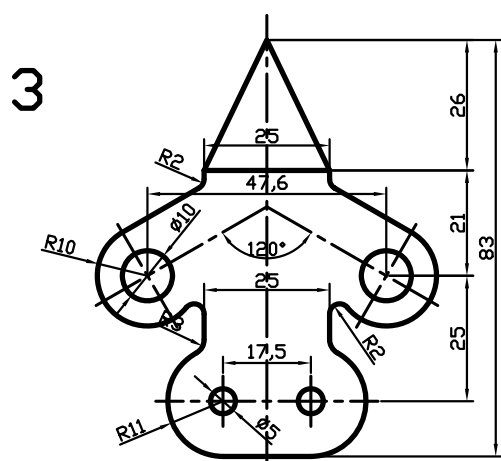
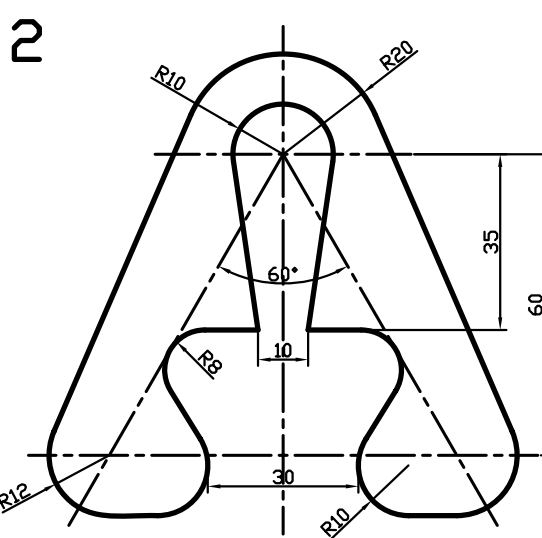
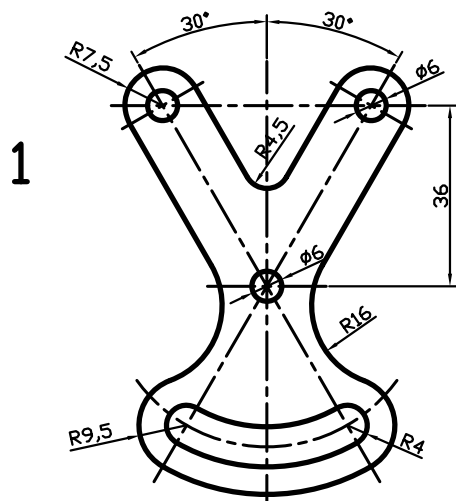
5

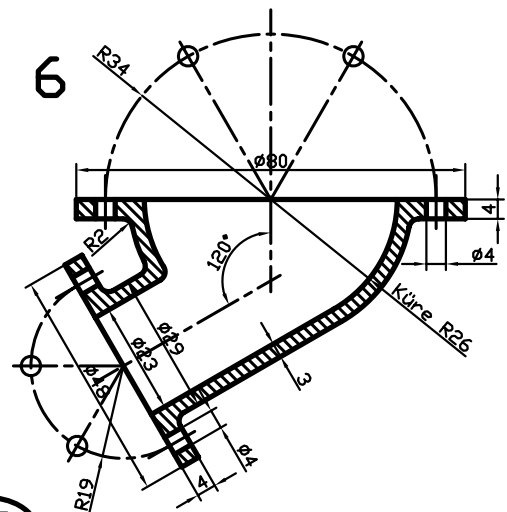
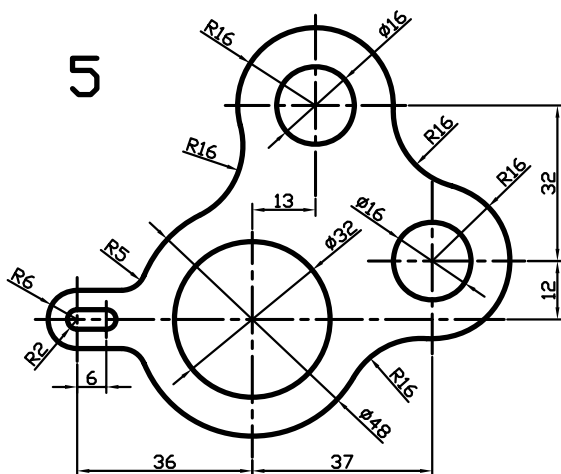
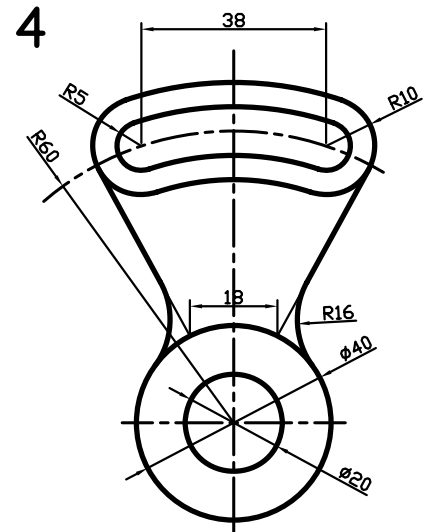
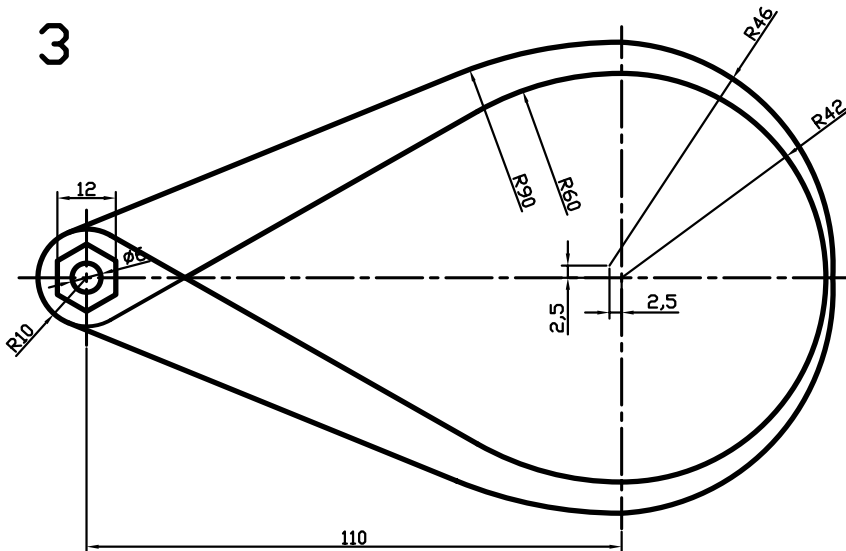
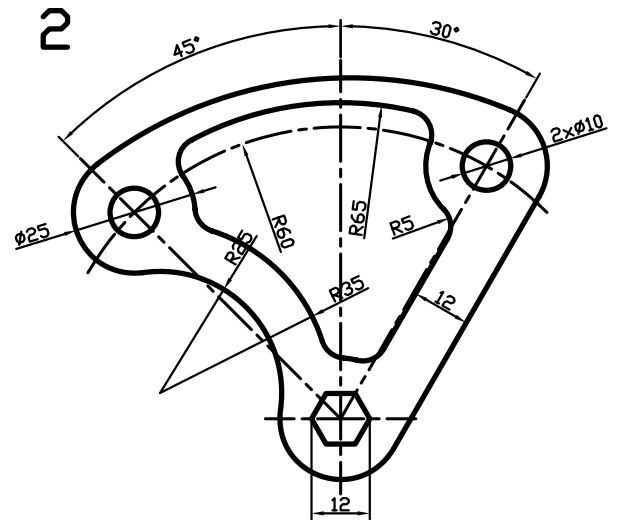
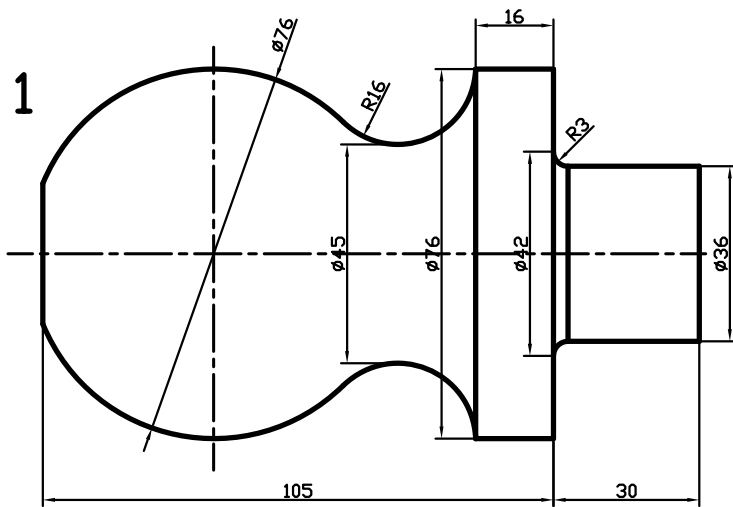


6

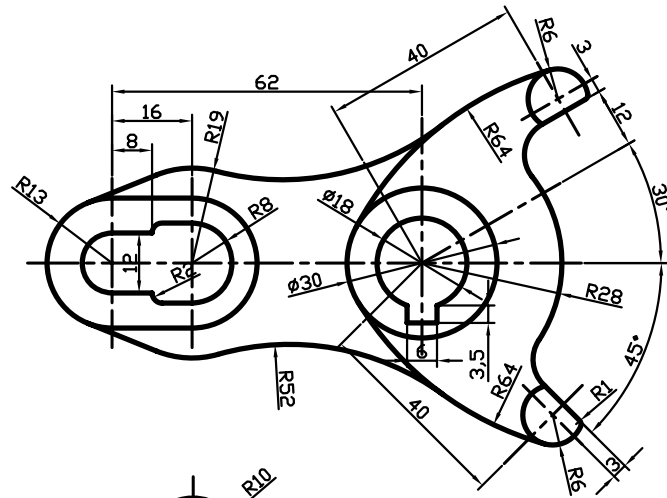


(37)

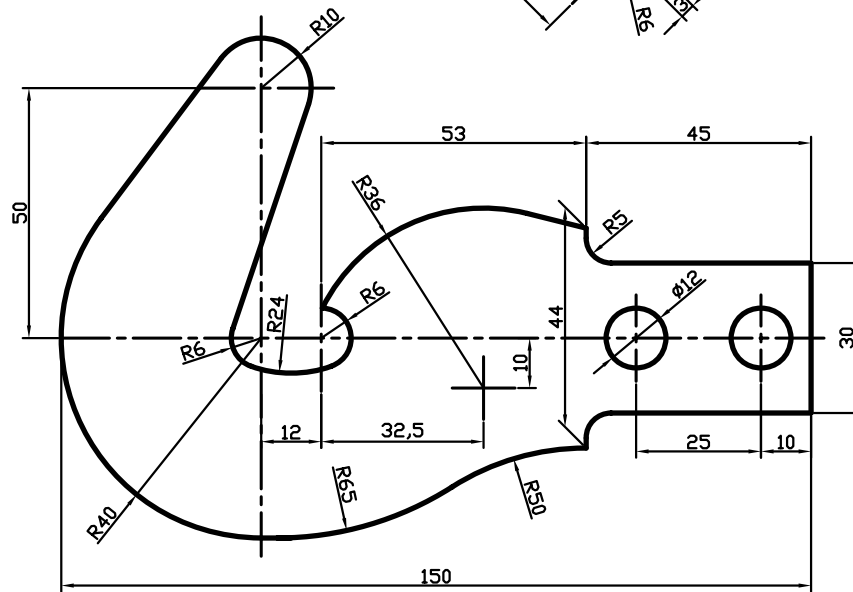




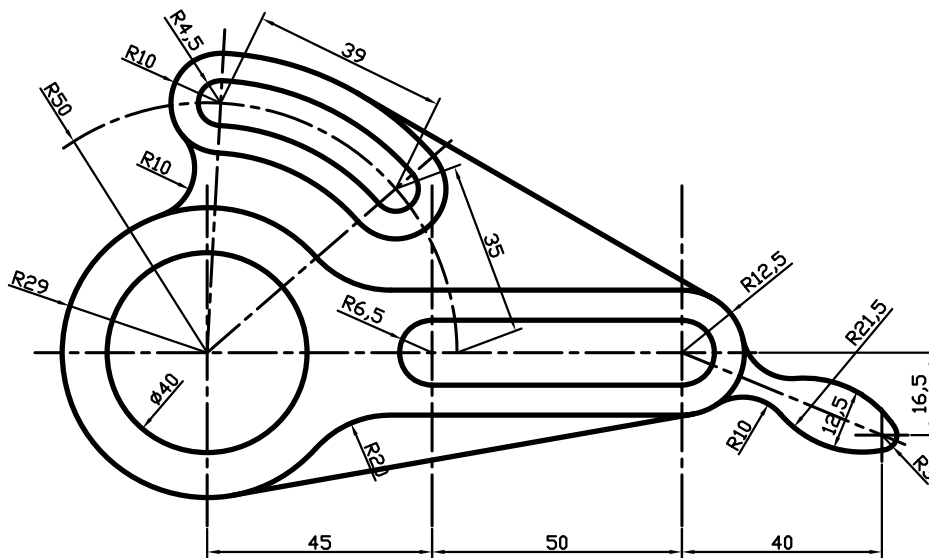
1



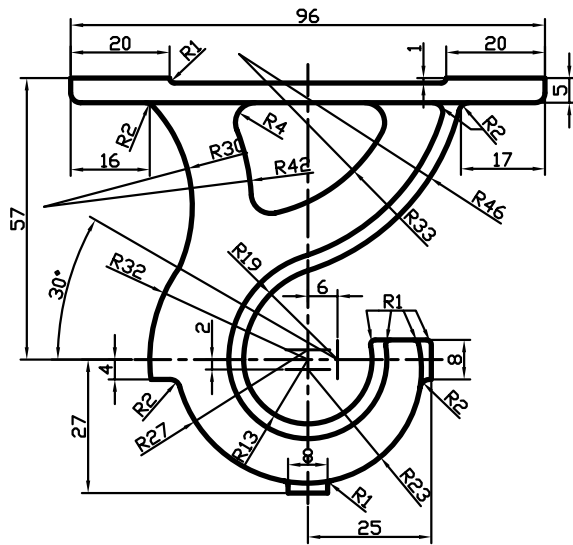
2



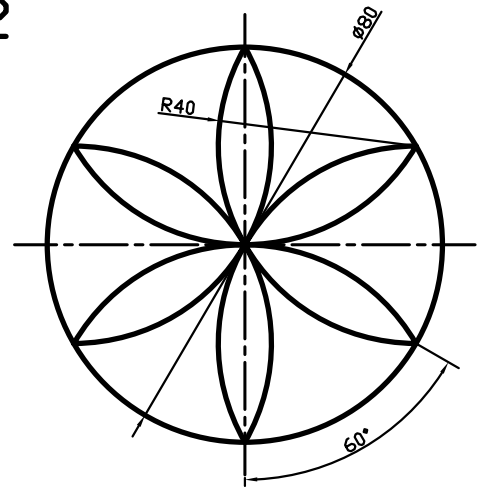
3



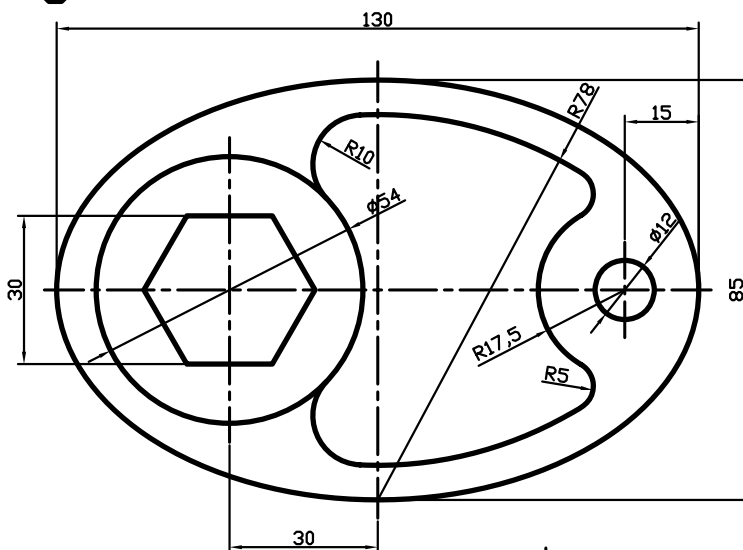
1



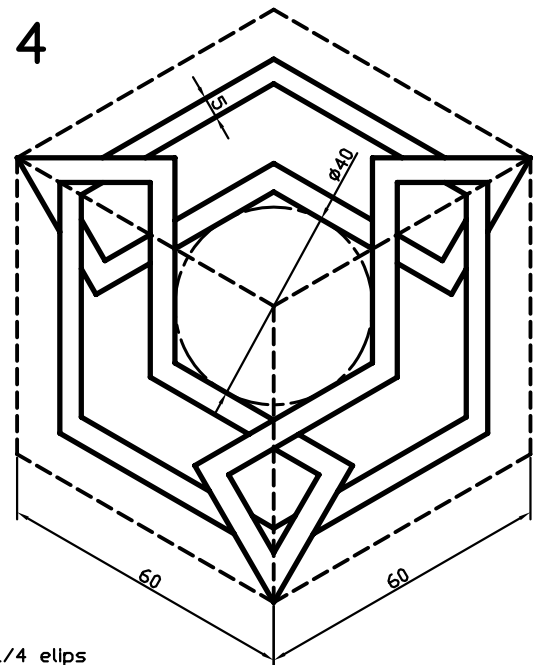
2



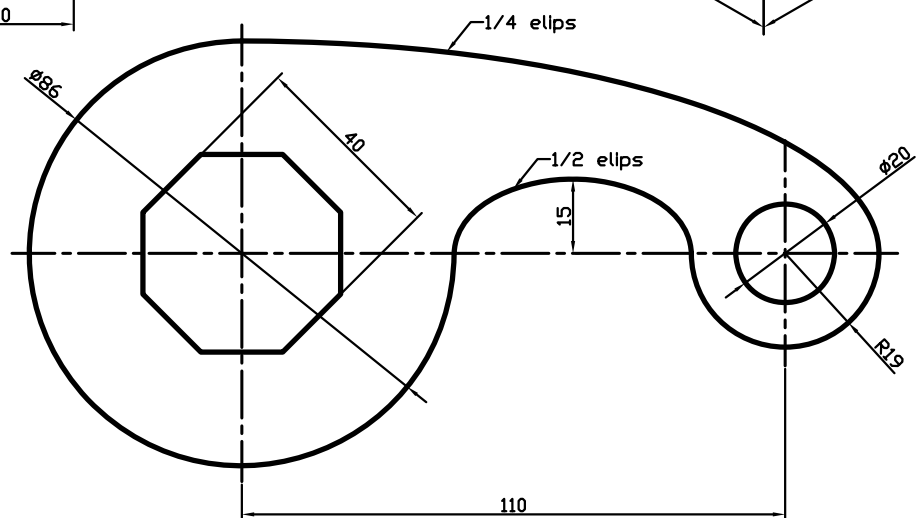
3



4

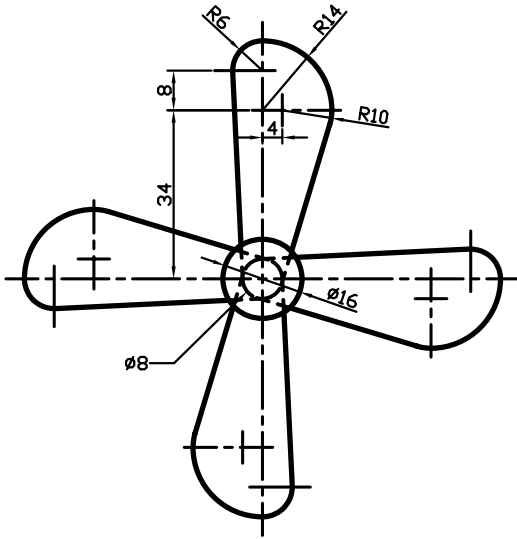


5

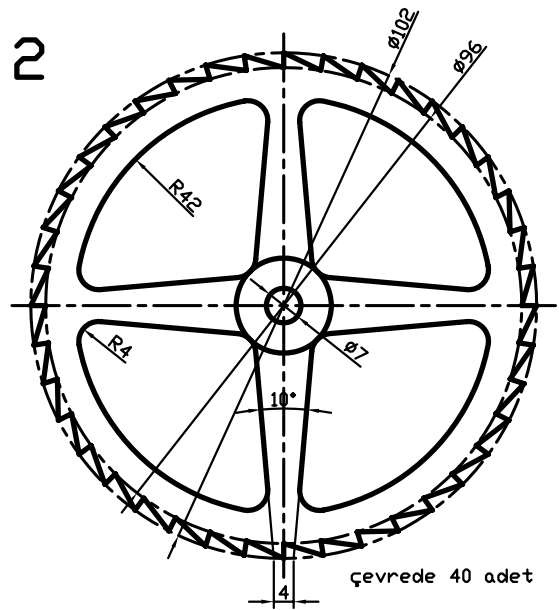


41

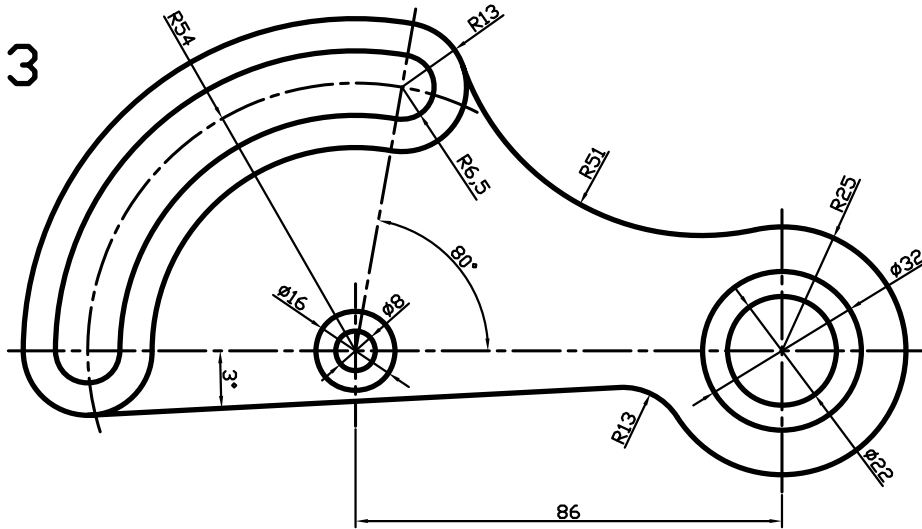
1



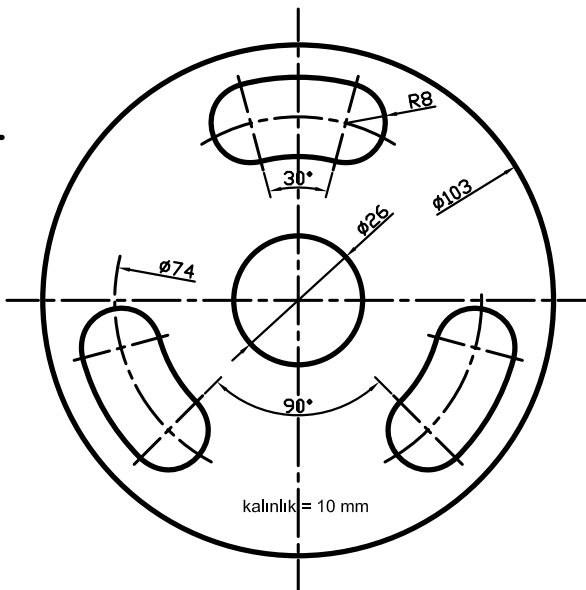
2



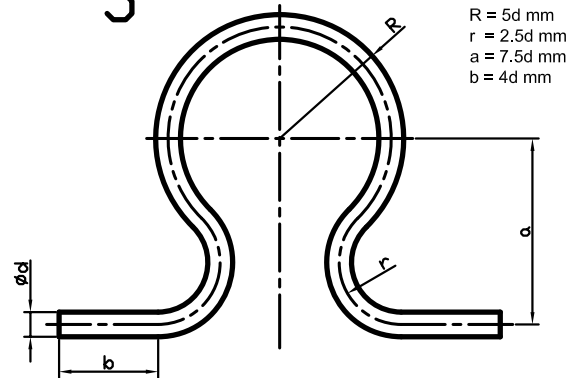
3



4



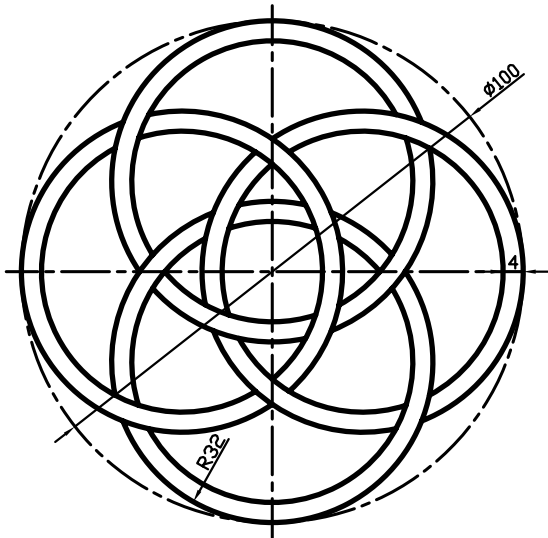
5



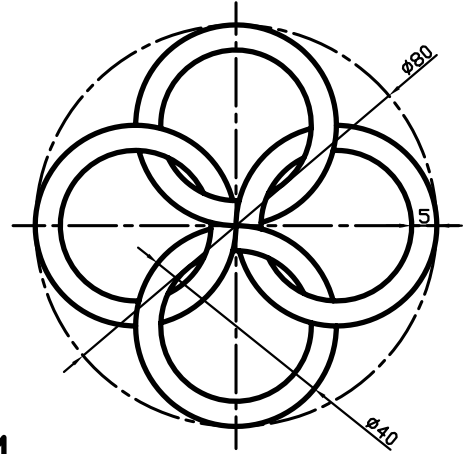
$R = 5d$ mm
 $r = 2.5d$ mm
 $a = 7.5d$ mm
 $b = 4d$ mm

42

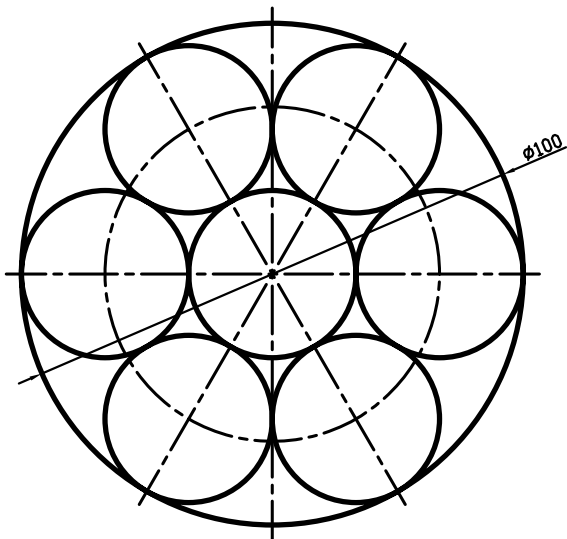
1



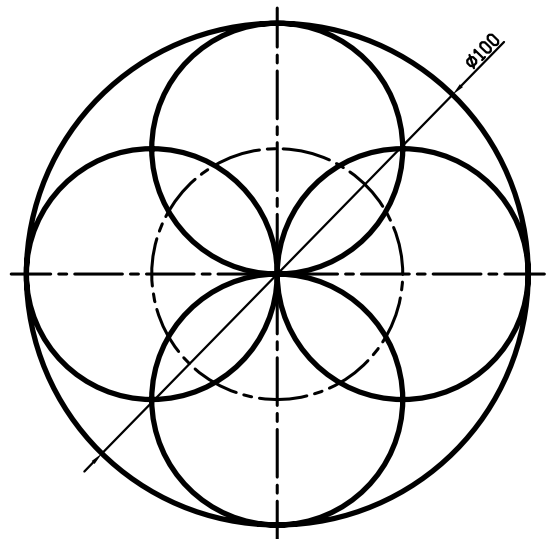
2



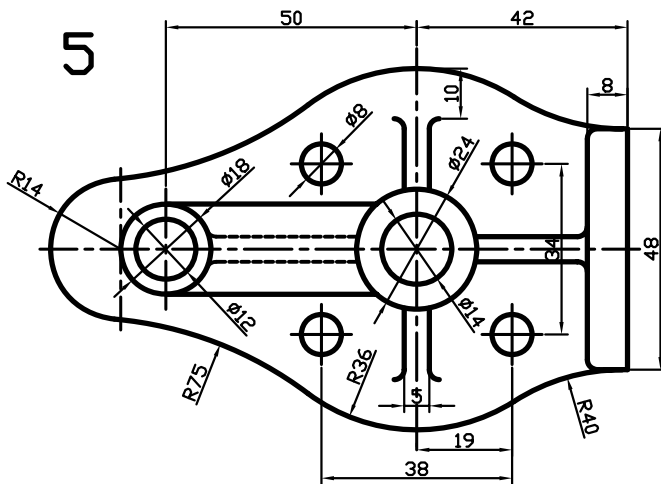
3



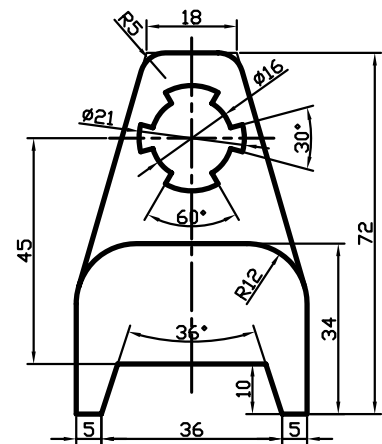
4



5



6



43

Tanışma, Çizim Yazılımları ve AutoCAD Tanıtımı

AutoCAD'i Başlatmak ve Başlangıç Diyalog Kutusu

Grup Klasörü Yaratmak, Dosya Açmak, Kaydetmek

Zoom ve Pan Komutları, Redraw, Regen, Regenall Komutları, Zoomfactor, Viewres değişkenleri, Saydam Komut Mantığı

AutoCAD Görünümü, Görünüm Ayarlamak ve Görünümü Kaydetmek, Profiller ve Workspaces

Çizgi ve Çember Komutları

Koordinat Giriş Yöntemleri, Kartezyen, Silindirik, Küresel ve Kutupsal, Göreceli Koordinatlar

Yön Vererek Koordinat Tanımlama, Ortho ve Polar Yöntemleri

Units, Dist ve List Komutları

Nesne Kenetlenme, OSNAP Seçenekleri

İzleme Yöntemleri, Tek Kademeli İzleme, OTRACK

Çok Kademeli İzleme, Temporary Tracking, Tracking ve Snap From

Trim, Extend, Offset Komutları

Grid, Snap, Limits ve Dynamic Input Yöntemi ve Seçenekleri

Fillet, Chamfer Komutları

Arc komutu

Polyline, Pedit, Explode, Join komutu (Offsetgapttype değişkeni ve fillet chamfer'daki polyline seçenekleri tekrarı)

Rectangle, Polygon, Revcloud, Ellipse, Spline, Splinedit komutları

Erase komutu, Obje seçme yöntemleri, Quick Select

Layer Properties Manager, Katman Oluşturma, Özelliklerini Ayarlama

Layer Properties Manager, Katman Filtreleri ve Durumları, Katman Durumlarını Kaydetme, Çizim Şablon Dosyası Hazırlama

Renk, Çizgi tipi, Çizgi Kalınlığı ve Çıktı Stili Ayarlama, Çizgi Tipi Oluşturma, Properties Paleti

Copy, Move, Rotate, Mirror, Stretch, Scale, Array Komutları ve Grip Editing

Dtext ve Mtext komutları, Yazı Stilleri, Yazı Düzenleme Komutları, Yay Üzerine Yazı Yazmak

Ölçü Stilleri ve Ölçülendirme Komutları, İlgilendirilmiş Ölçü Mantığı, Dimassoc ve Dimregen

Multileader Komutları ve Multileader Stilleri

Ölçülendirme Çizim Uygulaması

Viewports

AutoCAD'de Layout kavramı, Sayfa ve Plotter Ayarları

Mview ile Görüntü Pencerelemleri Oluşturma, Detay Görüntüler Alma, Dimregen

Plot ve Page Setup Ayarları, Plot Stamp, Elektronik Çıktılar ve aralarındaki Farklar (DWF, PDF, JPG)

Yeni Plotter Tanımlama, Plotstyles, Sheetsets

Annotative Mantığı

Tablo Komutu ve Tablo Stilleri

Tarama Komutu (Hatch, Bhatch)

Blok Oluşturma, Yerleştirme ve Düzenleme

Attribute (Nitelik) Oluşturma, Nitelikleri Metin Dosyasına Aktarma, Antette Nitelik Kullanımı

Dinamik Bloklar

Design Center, Tool Palette, Dashboard ve Quick Calculator, CAD Standards

Dış referans (Xref), DWF, Resim, OLE Ekleme ve Yönetimi

Point, Divide ve Measure Komutları, Lengthen ve Break Komutları

Construction Line, Ray, Multiline Komutları, Multiline Stili

İzometrik ve Eğik Çizim, Ölçülendirme Ayarları

Area, Region, Boundary ve Massprop Komutları

Mantıksal Operatörler (Union, Subtract, Intersect)

AutoCAD Komut Kısayollarını Düzenleme, Araç Çubuğu ve İkon Yaratma, Menü Yükleme ve Kaldırma

eTransmit ve Kalan File Menüsü Komutları Özeti

İki Boyut Sınav Uygulaması ve Sınavı

3 Boyutlu Modellemeye Giriş

3 Boyutlu Koordinatların Tekrarı, Tel Kafes Modelleme

UCS, 3D Views ve Orbit Komutları, UCS ve View Kaydırma

Box, Wedge, Cone, Sphere, Cylinder, Torus, Pyramid, Polysolid

Mantıksal Operatörler (Union, Subtract, Intersect) Hatırlatması

Dynamic UCS

Çizim Uygulaması

Extrude, Revolve, Sweep, Helix, Loft, Presspull

Çizim Uygulaması

3 Boyutlu Fillet, Chamfer, Slice ve Thicken Komutları

3D Move, 3D Rotate, 3D Mirror, 3D Array, 3D Align

Solids Editing Araç Çubuğu, 3d Grip Editing

Çizim Uygulaması

Katı Modelden Kağıt Ortamında Teknik Resim Görüntüleri Alma ve Ölçülendirme

Çizim Uygulaması

Lights, Materials, Cameras ve Render İşlemleri

Çizim Uygulaması

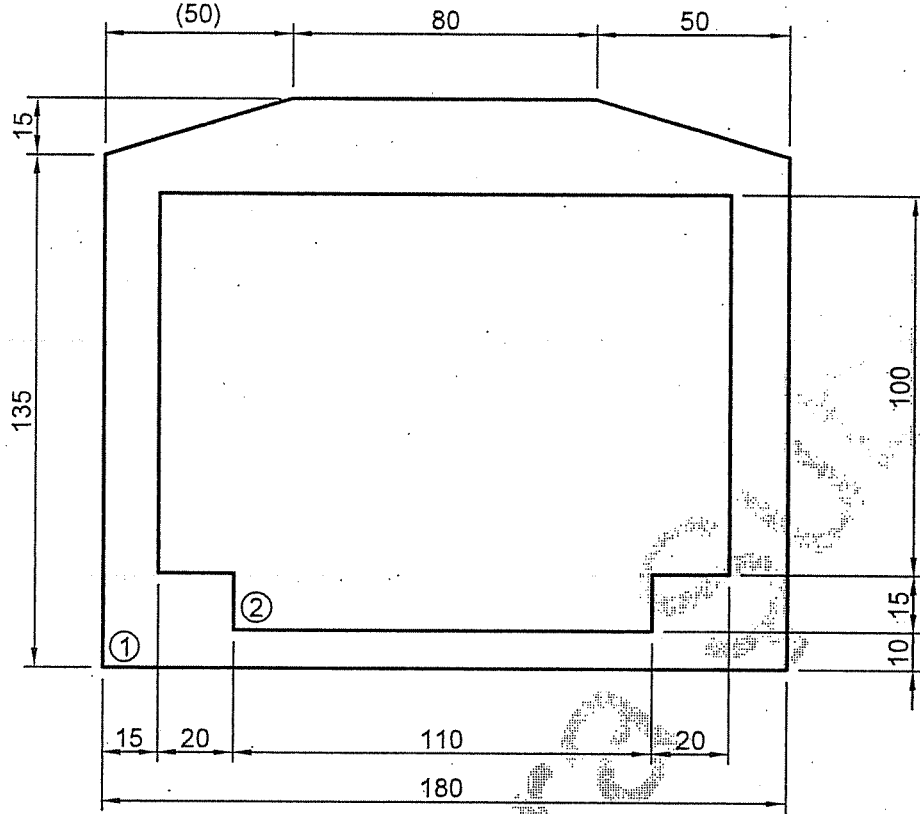
Walk, Fly, Motion Path Animations ve Video Kaydetme

Yüzey Modelleme

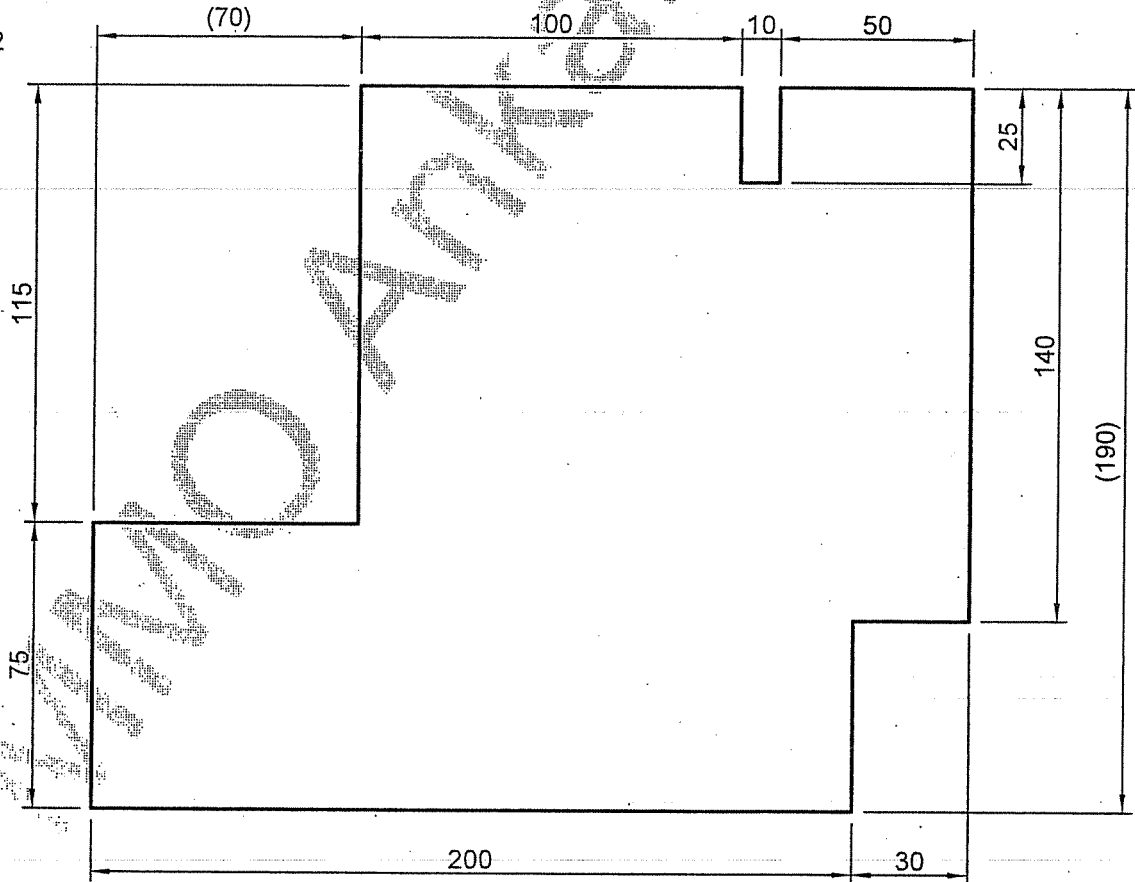
Üç Boyut Sınav Uygulaması ve Sınavı

ÖLÇEK 1 : 2
METRİK

Autodesk



ÖLÇEK 1 : 2
METRİK



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

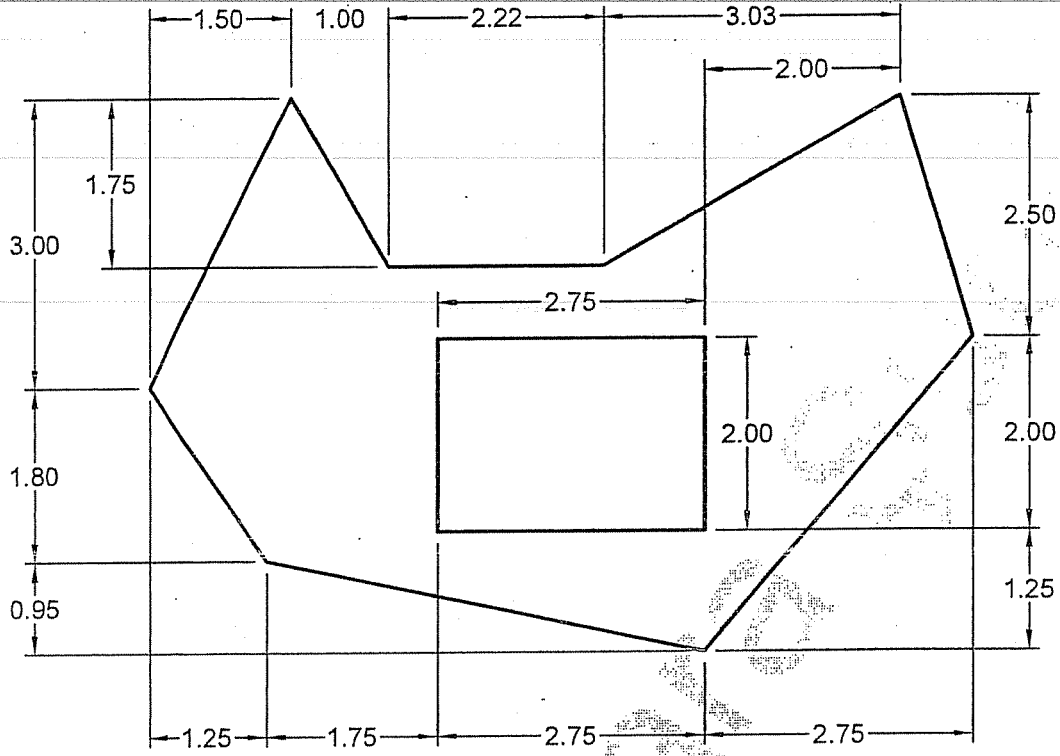
Resim No:
2B-001

Konu:
Çizgi Komutu ve Koordinat Girme

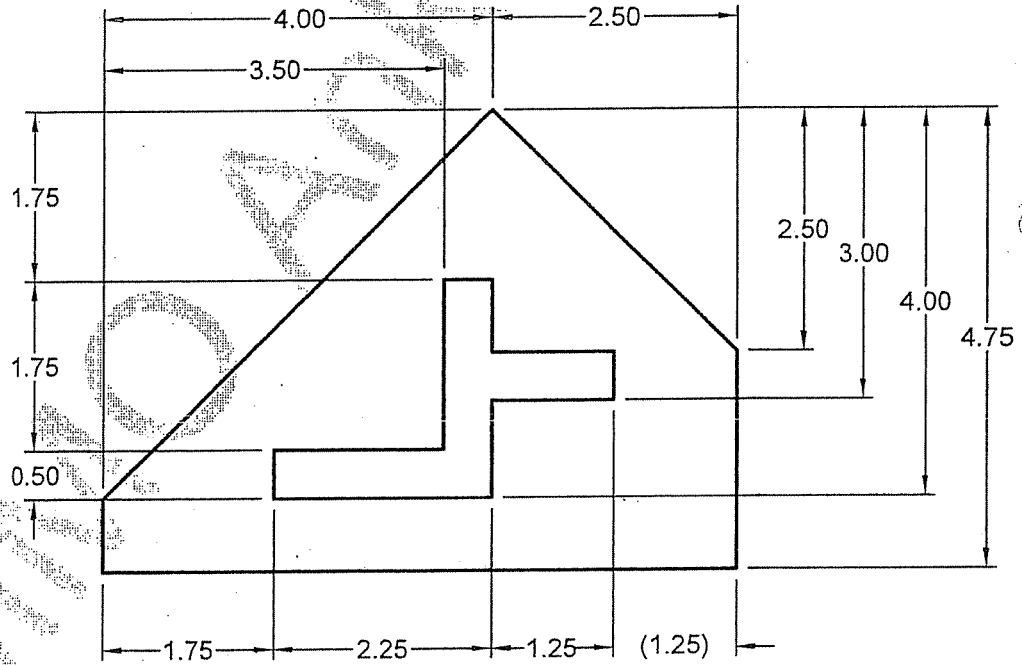
Hatırlatmalar: (1) 'den (2) 'ye geçerken çok
kademeli izleme metodu kullanınız.

ÖLÇEK 1:2
İNÇ

Autodesk



ÖLÇEK 1:2
İNÇ



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:

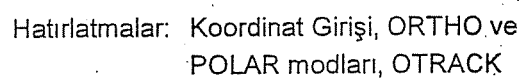
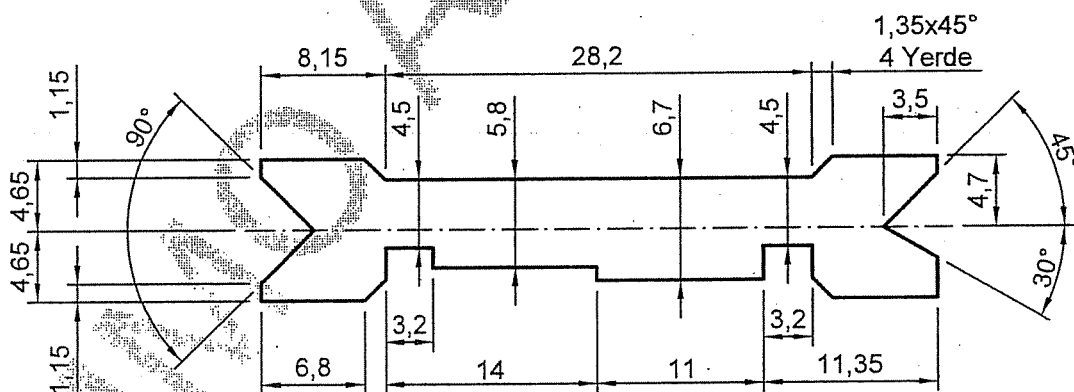
2B-005

Konu:

Çizgi Komutu ve Koordinat Girme

Hatırlatmalar: Göreceli Koordinatlar,
İzleme Yöntemleri

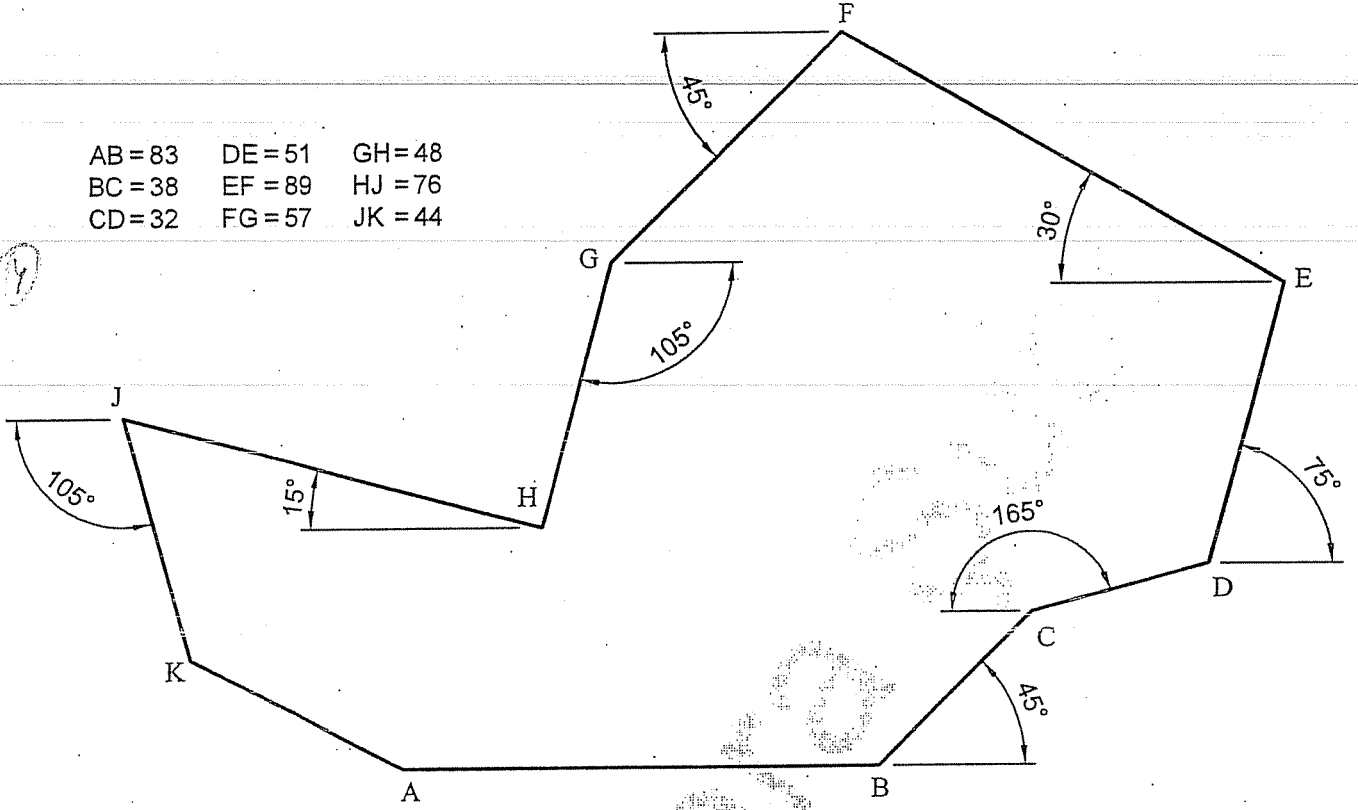
Autodesk®



ÖLÇEK 3 : 4
METRİK

Autodesk

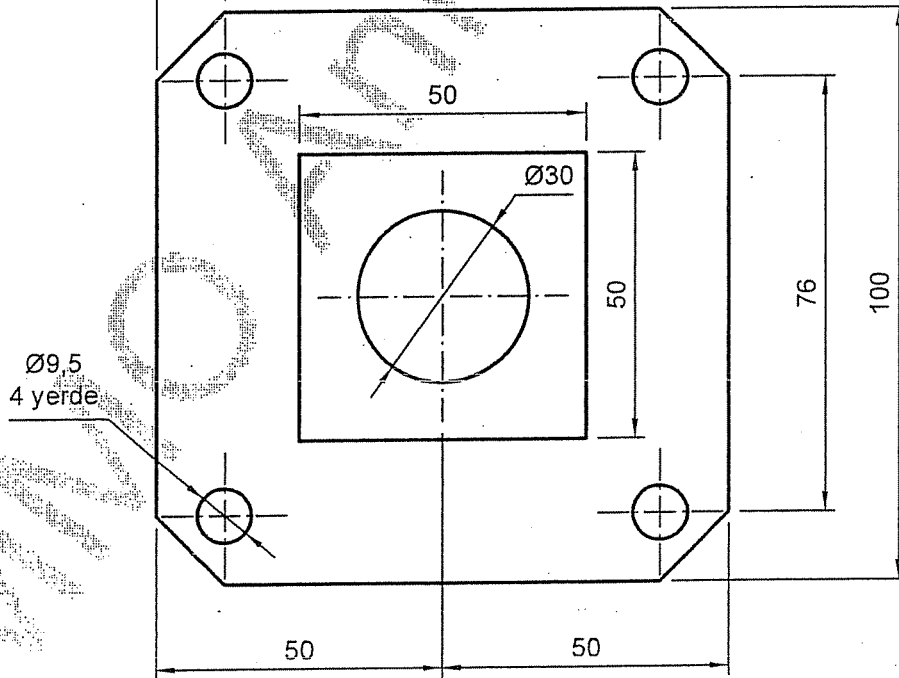
AB = 83 DE = 51 GH = 48
BC = 38 EF = 89 HJ = 76
CD = 32 FG = 57 JK = 44



12x45°
4 yerde

76

ÖLÇEK 3 : 4
METRİK



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:

2B-015

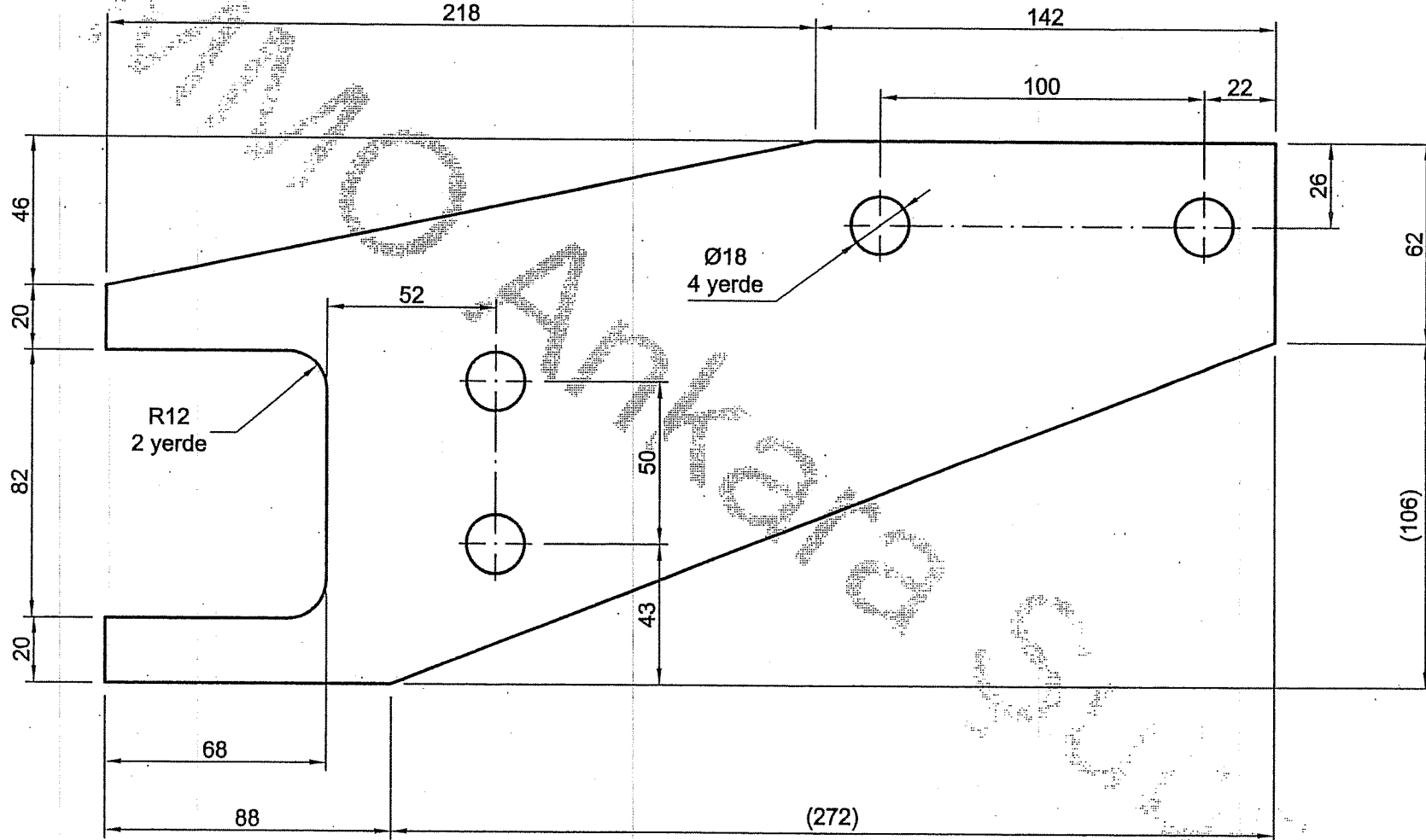
Konu:

Polar Modu ve İzleme Yöntemleri

Hatırlatmalar:

ÖLÇEK 1 : 2
METRİK

Autodesk



Osman Günhan Bayat
Arda İskenderoğlu

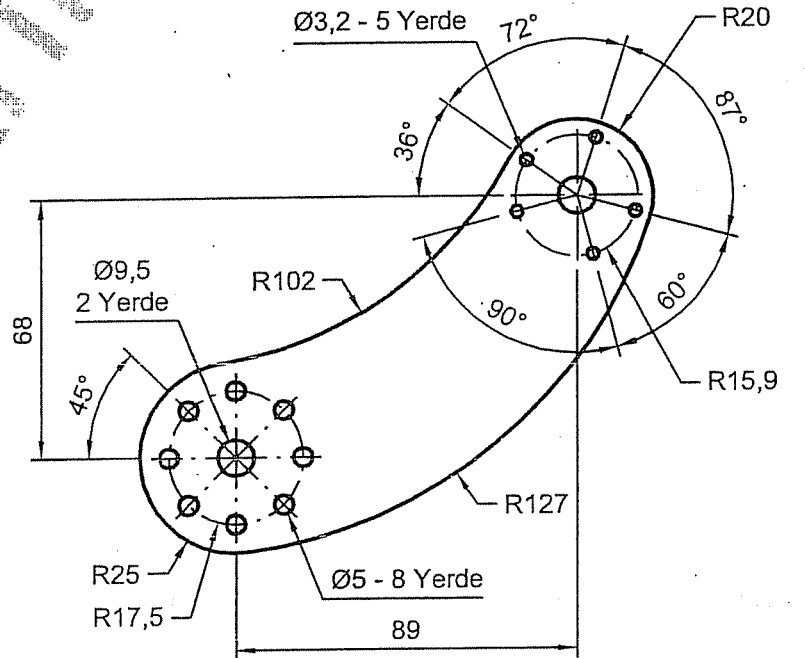
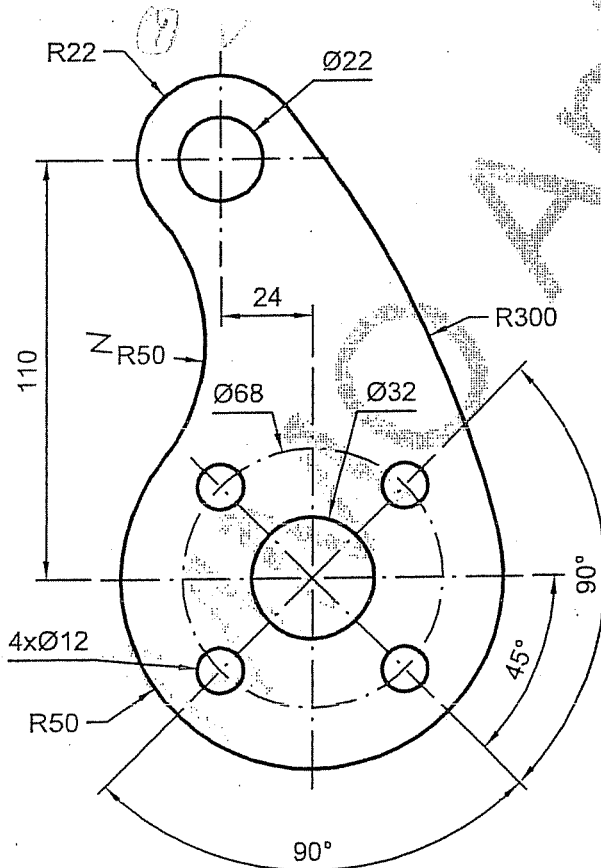
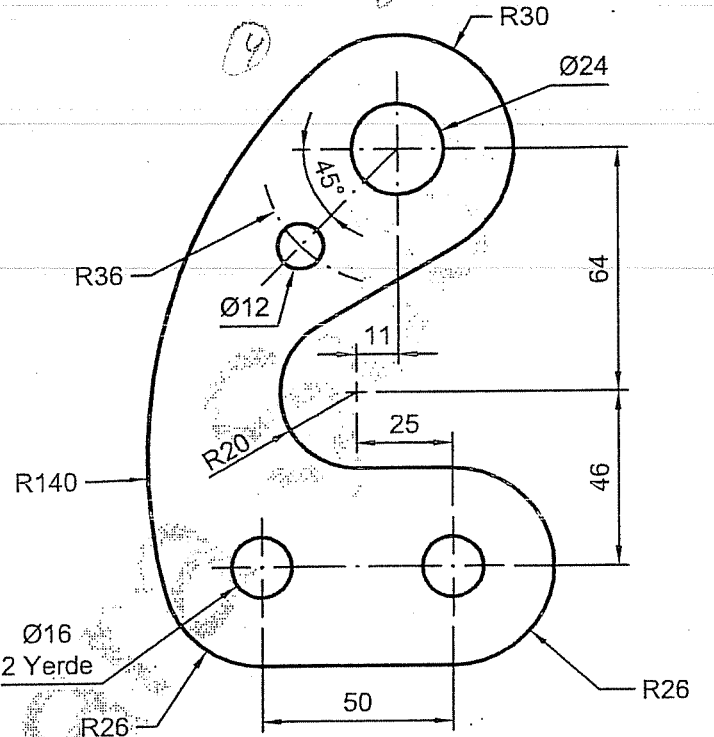
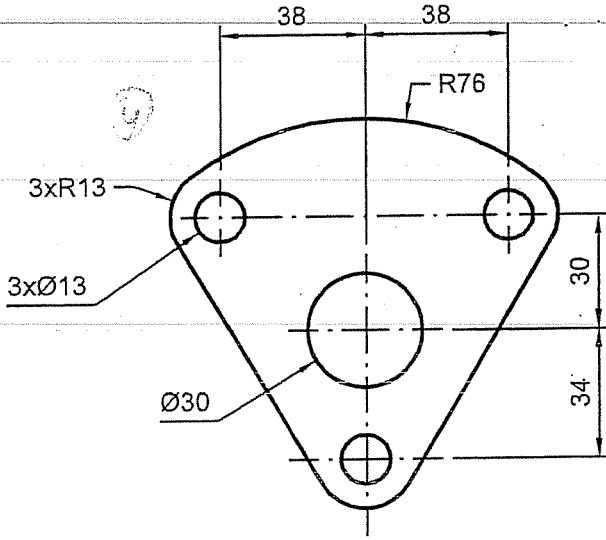
Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-020

Konu:

Genel Çizim İşçiliği

Hatırlatmalar:



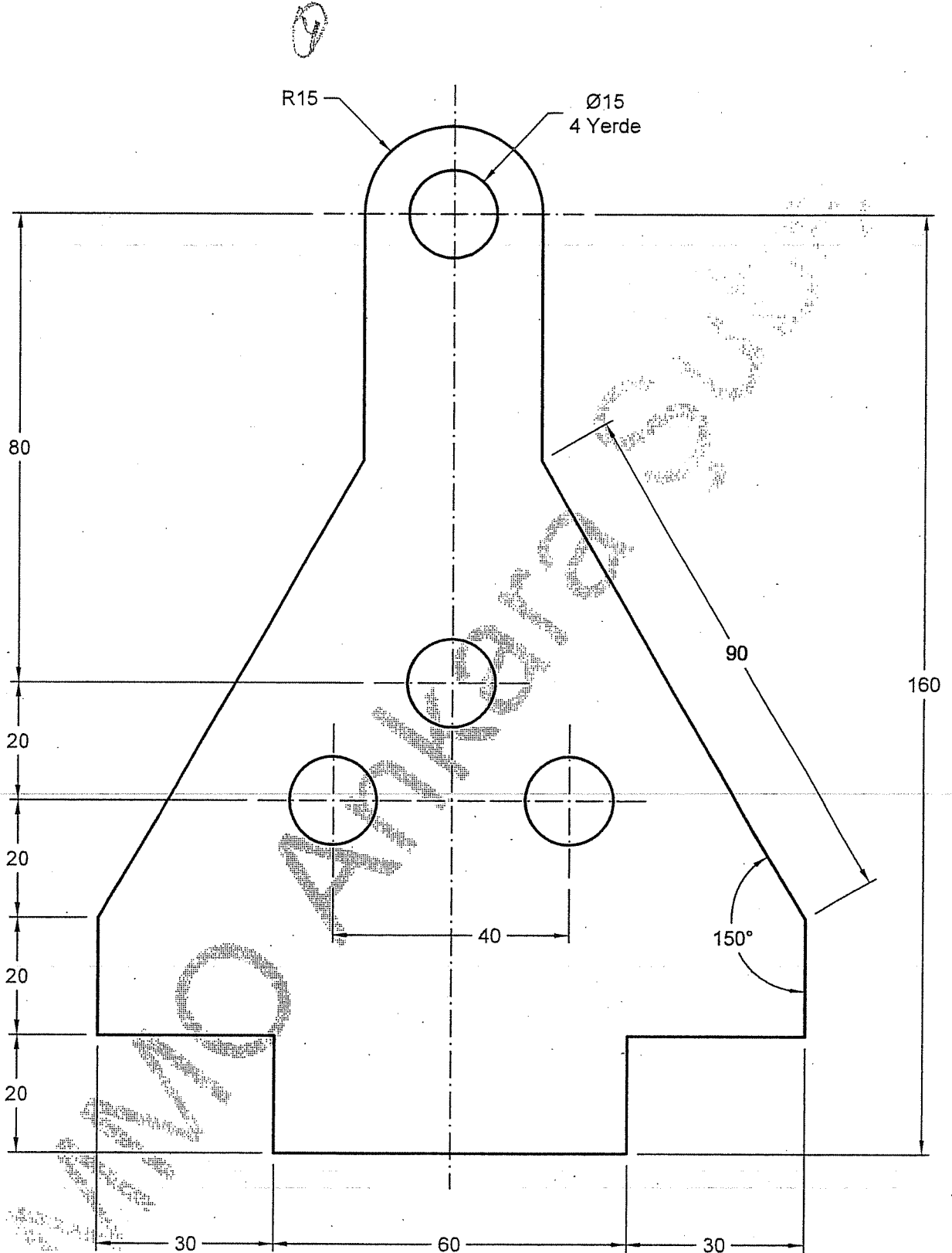
Osman Günhan Bayat
Abdurrahman Kurşun

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-025

Konu:
Çizgi, Çember, Budama, İzleme Yöntemleri

Hatırlatmalar: İzleme Yöntemleri
(OTRACK ve Temporary Tracking)



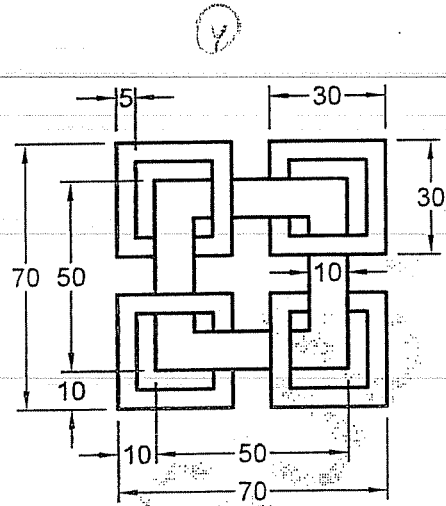
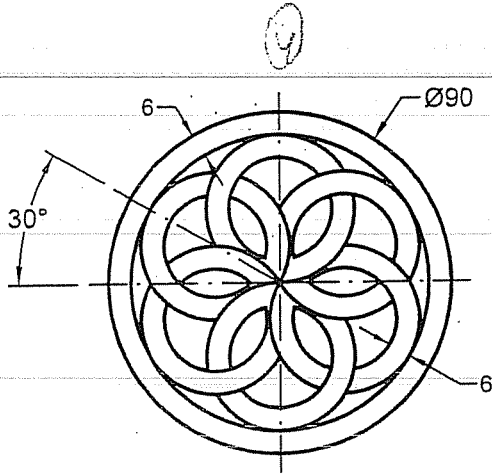
Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

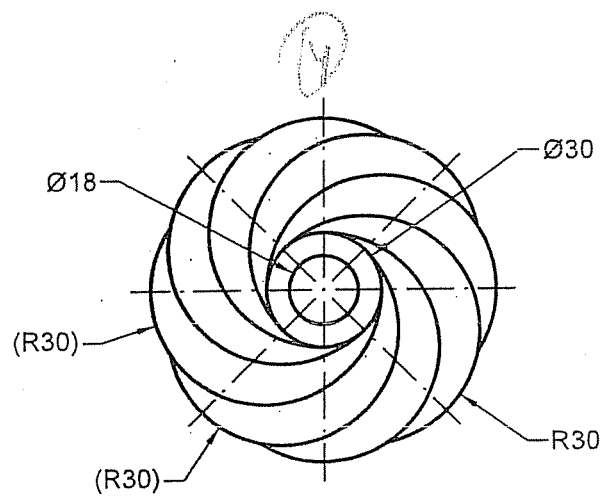
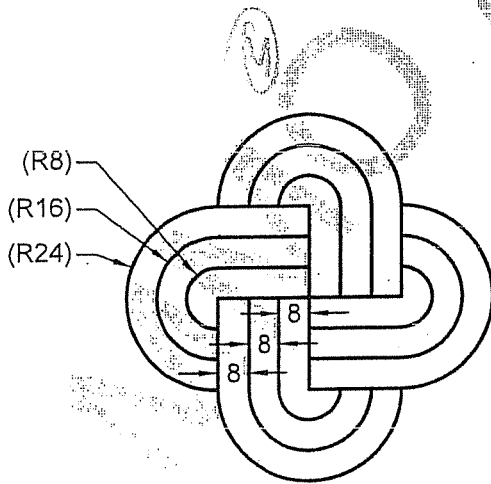
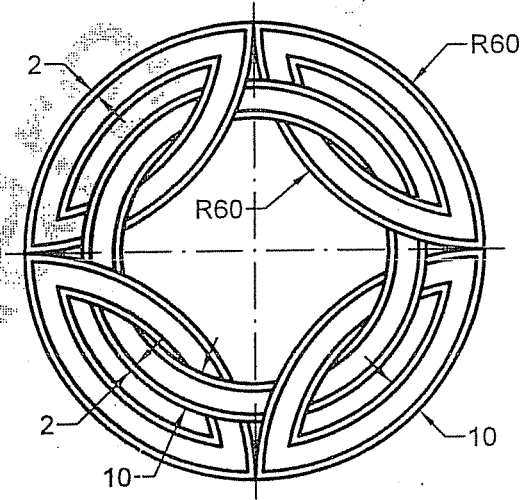
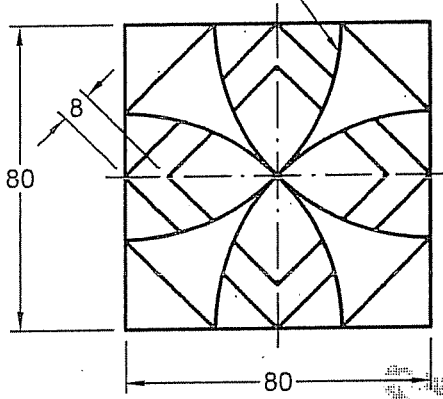
Resim No:
2B-030

Konu:
Çizgi, Çember, Budama (Trim) Komutları

Hatırlatmalar:



Yayın merkezi ile karenin
köşesi aynı noktada



Osman Günhan Bayat
Zafer Emre Ergün, Serkan Çiçek

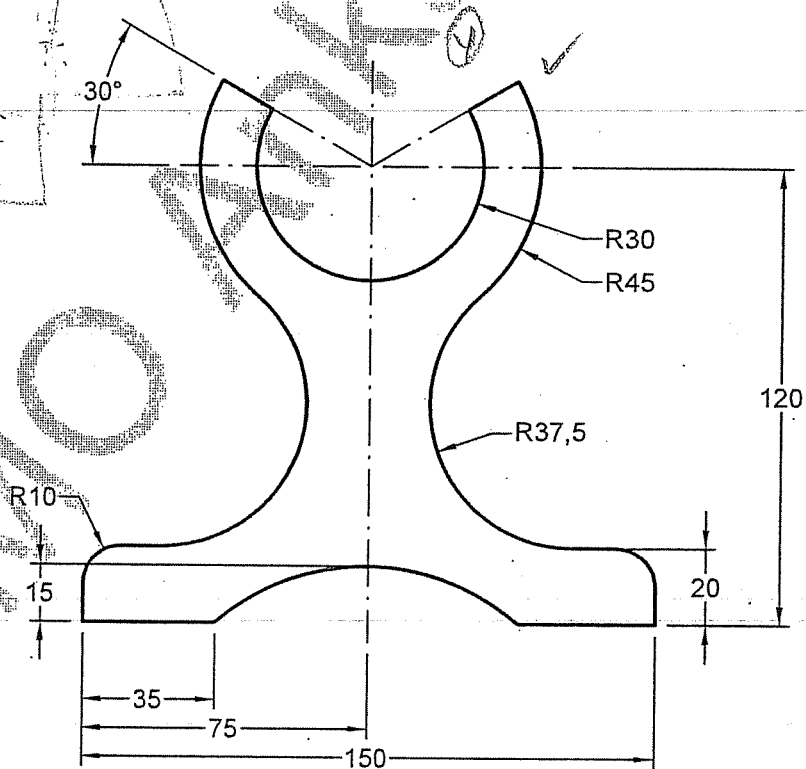
Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-035

Konu:
Çember, Trim, Extend, Offset Komutları

Hatırlatmalar:

Autodesk®

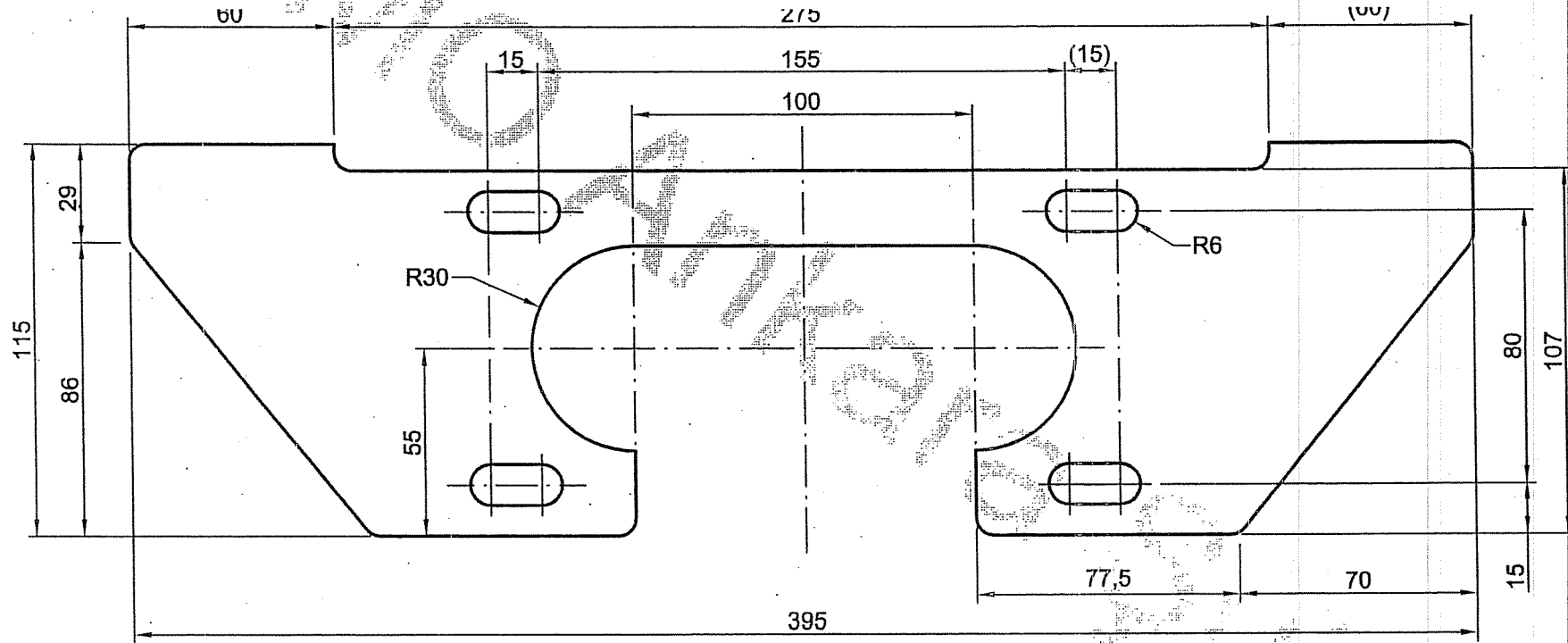


2B-040

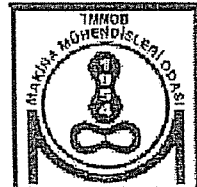
İzleme Yöntemleri

ÖLÇEK 1 : 2
METRİK

Autodesk



NOT: Belirtilmeyen yuvarlatmalar R5
Köşe ölçüleri, kenarların kesişim
noktasından verilmiştir.



Osman Günhan Bayat
Arda Iskenderoğlu

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-045

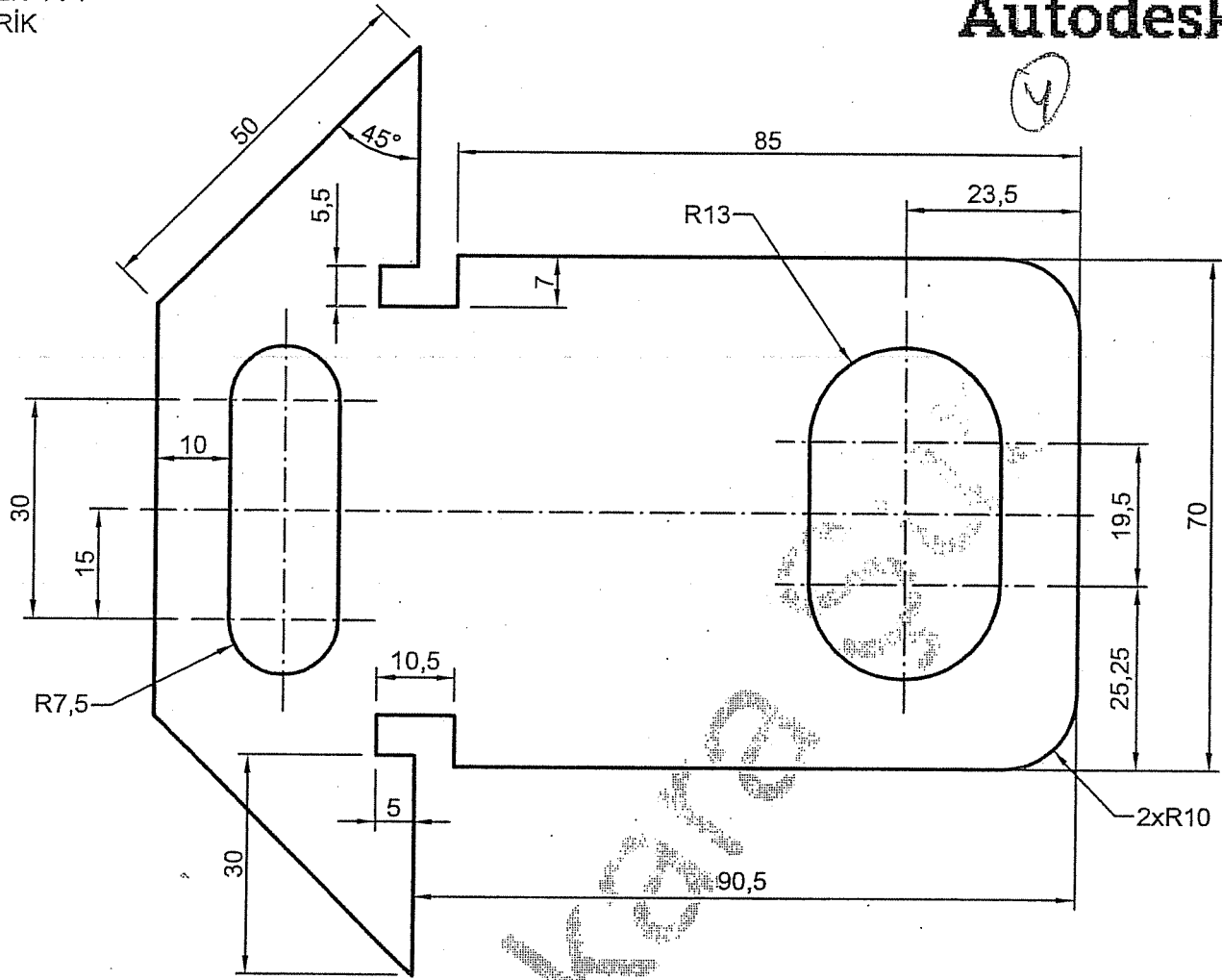
Konu:

Genel Çizim Uygulaması

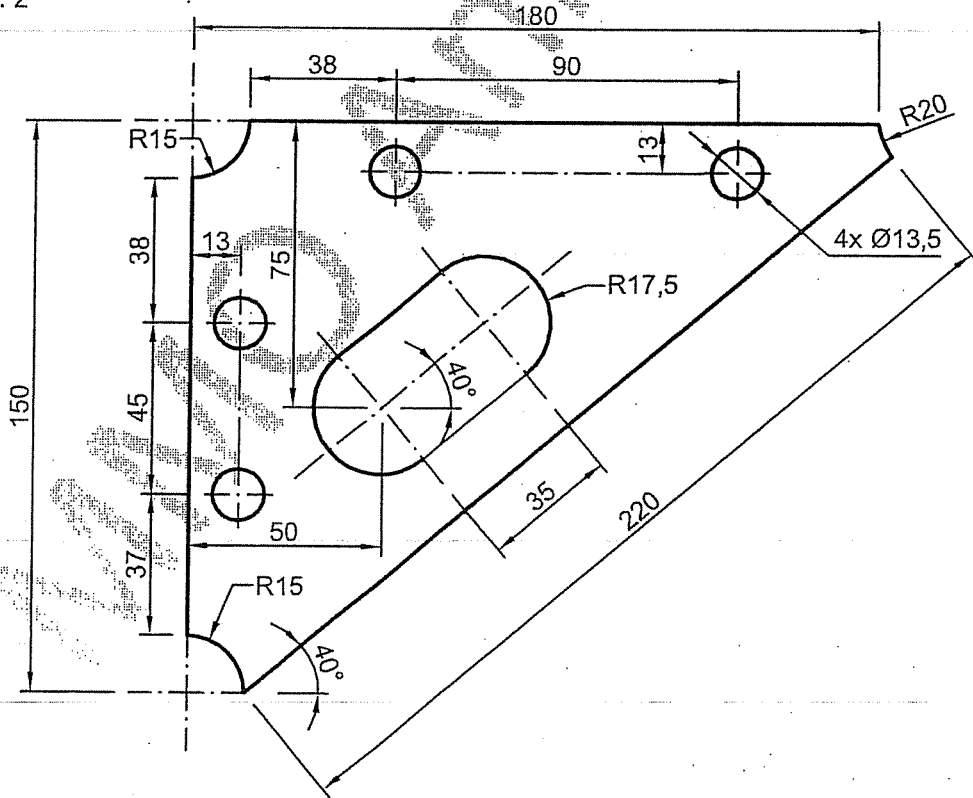
Hatırlatmalar:

ÖLÇEK 1:1
METRİK

Autodesk



ÖLÇEK 1:2
METRİK



Osman Günhan Bayat
Arda İskenderoğlu

Makina Mühendisleri Odası
Ankara Şube

Resim No:

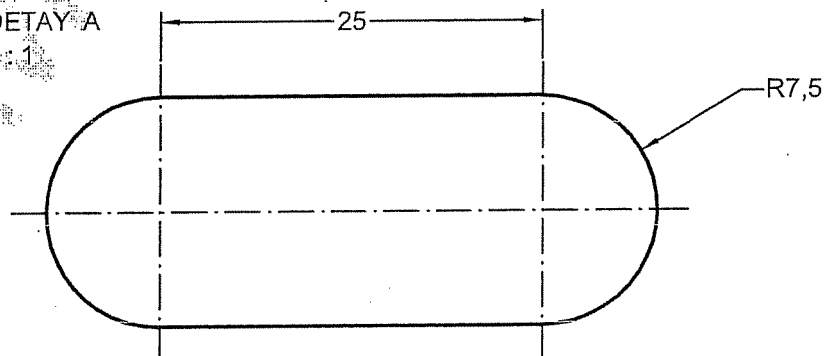
2B-050

Konu:

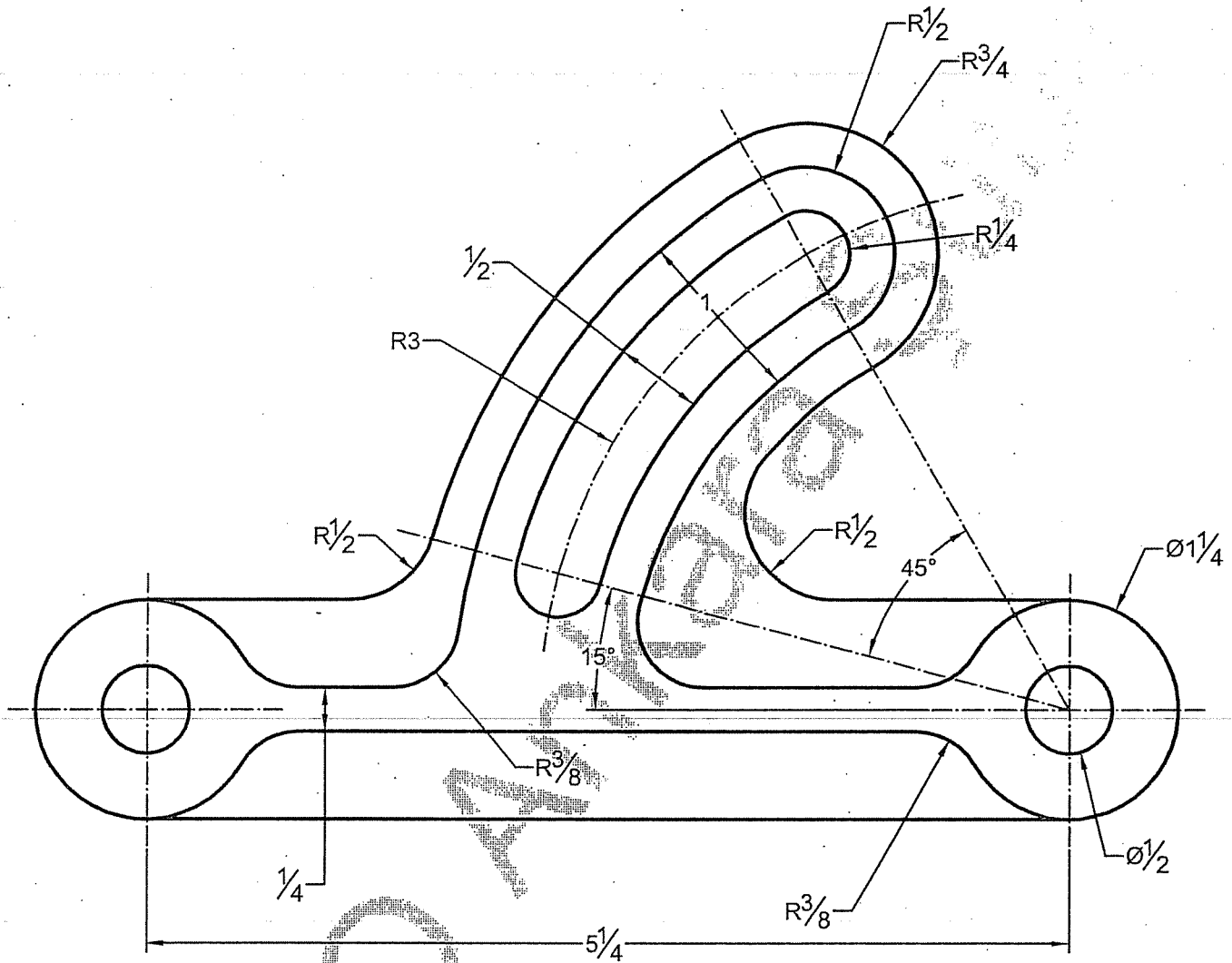
Çizgi, Çember, Budama, İzleme Yöntemleri

Hatırlatmalar:

Autodesk

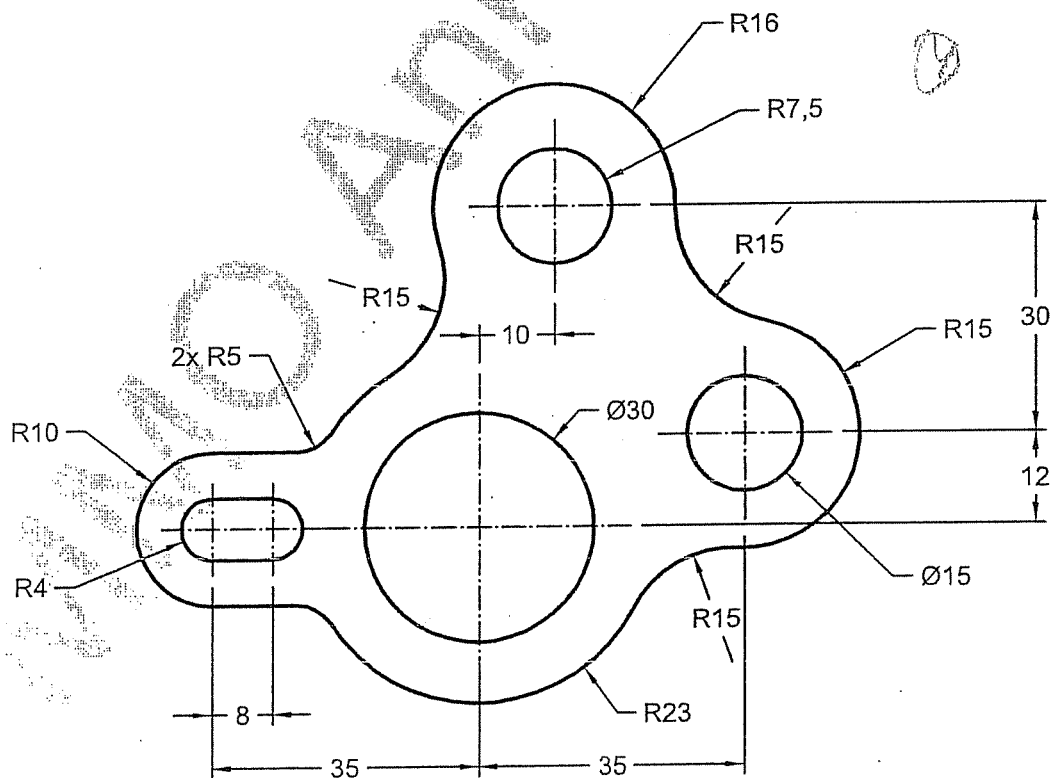


Autodesk®



Hatırlatmalar:

Autodesk®

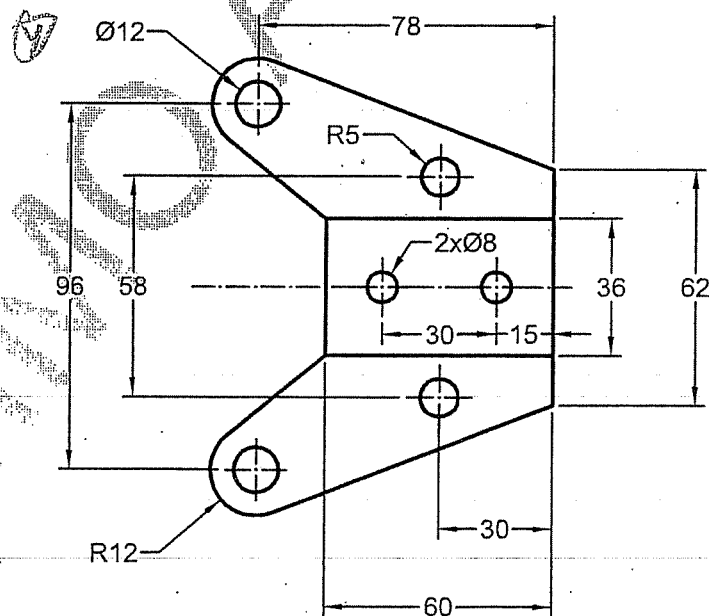


Makina Mühendisleri Odası
Ankara Şube

2B-065

Hatırlatmalar:

Autodesk

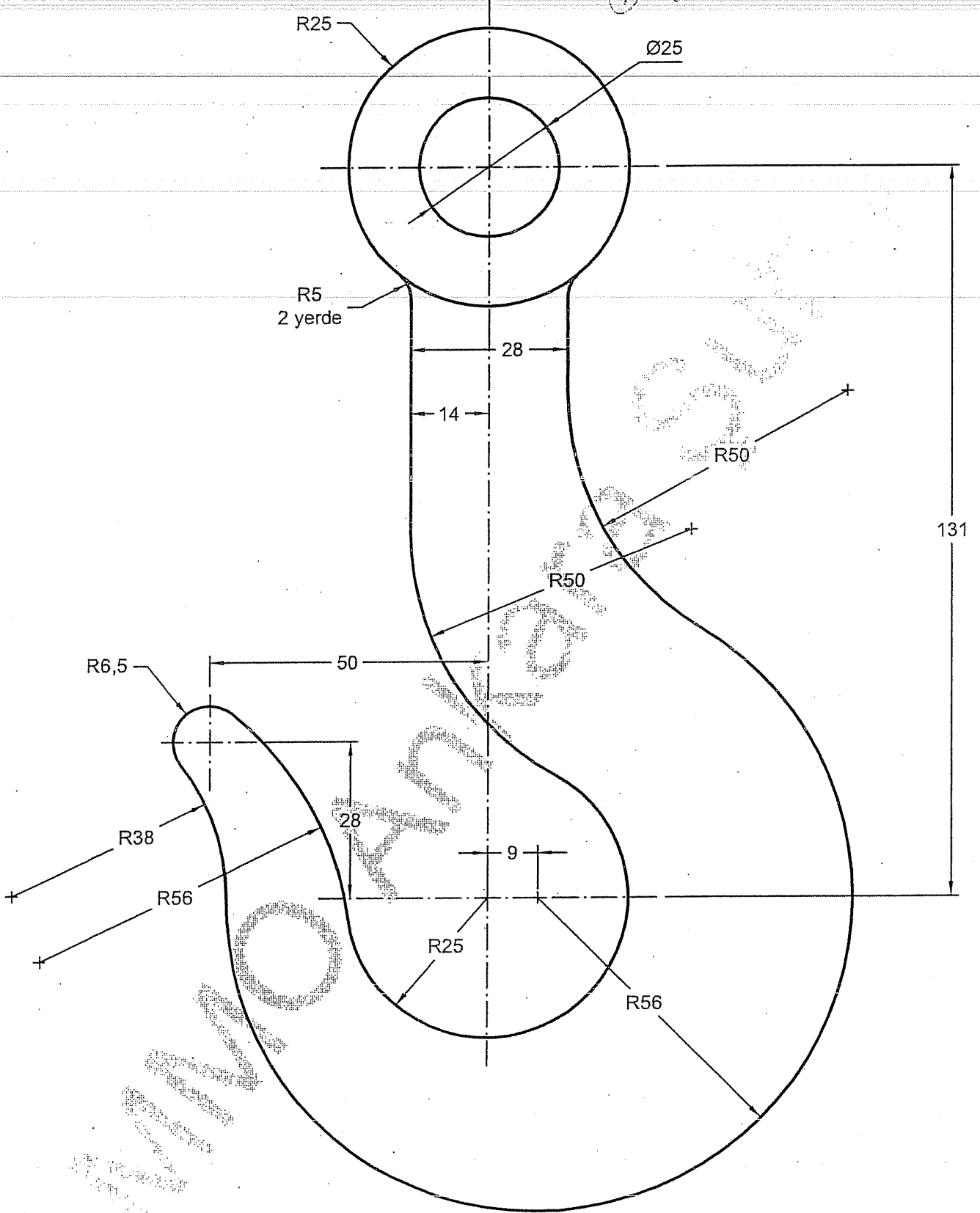


Resim No: 2B-070

Hatırlatmalar: İzleme Yöntemleri (OTRACK ve Temporary Tracking)

ÖLÇEK 1:1
METRİK

Autodesk



Osman Günhan Bayat
Abdurrahman Kurşun

Makina Mühendisleri Odası
Ankara Şube

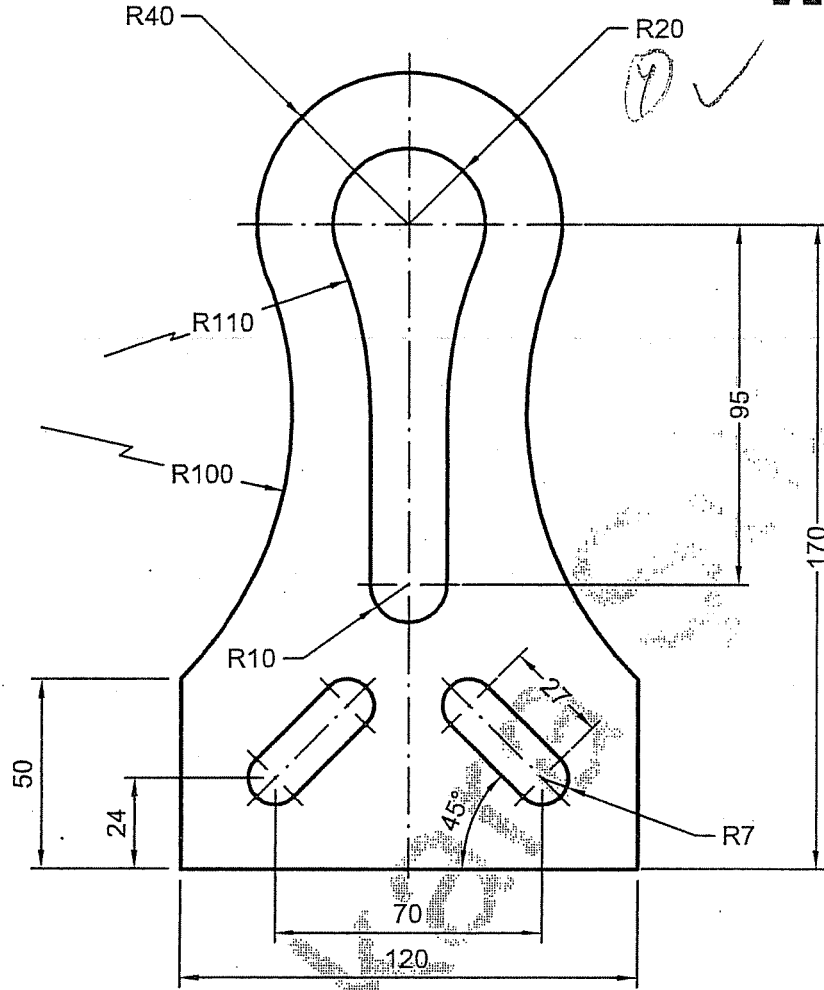
Resim No:
2B-075

Konu:
Çember, İzleme, Budama Komutları

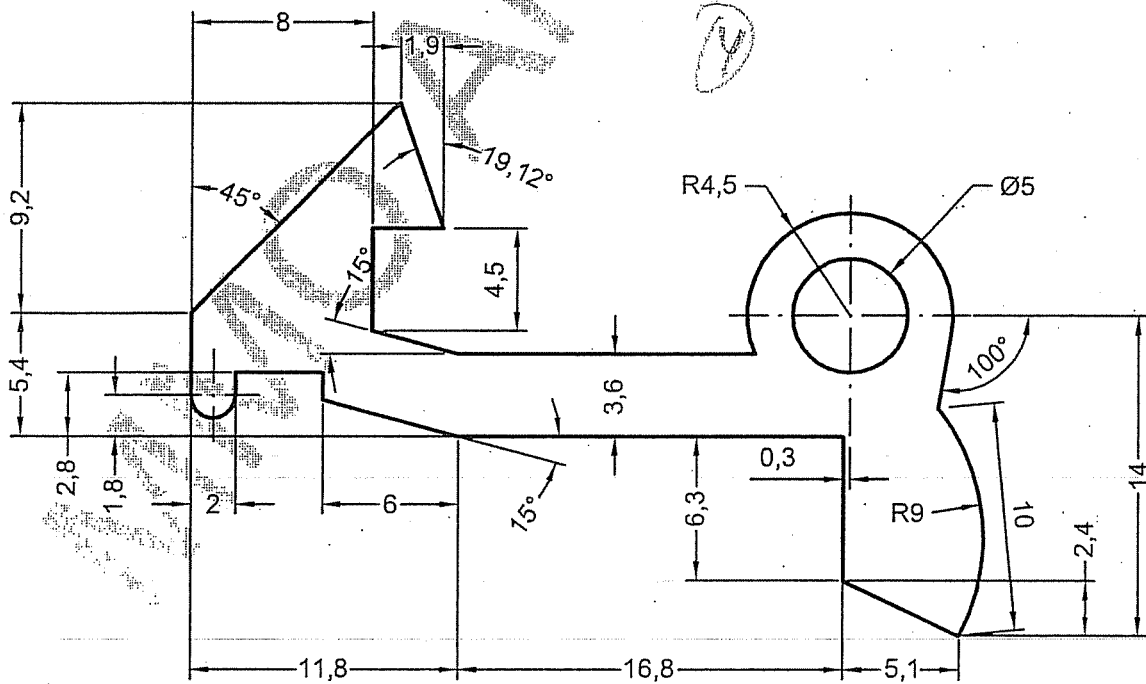
Hatırlatmalar: Merkez ve son noktaları bulurken
fazla çizgi çizmeyiniz.

ÖLÇEK 1:2
METRİK

Autodesk



ÖLÇEK 3:1
METRİK



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

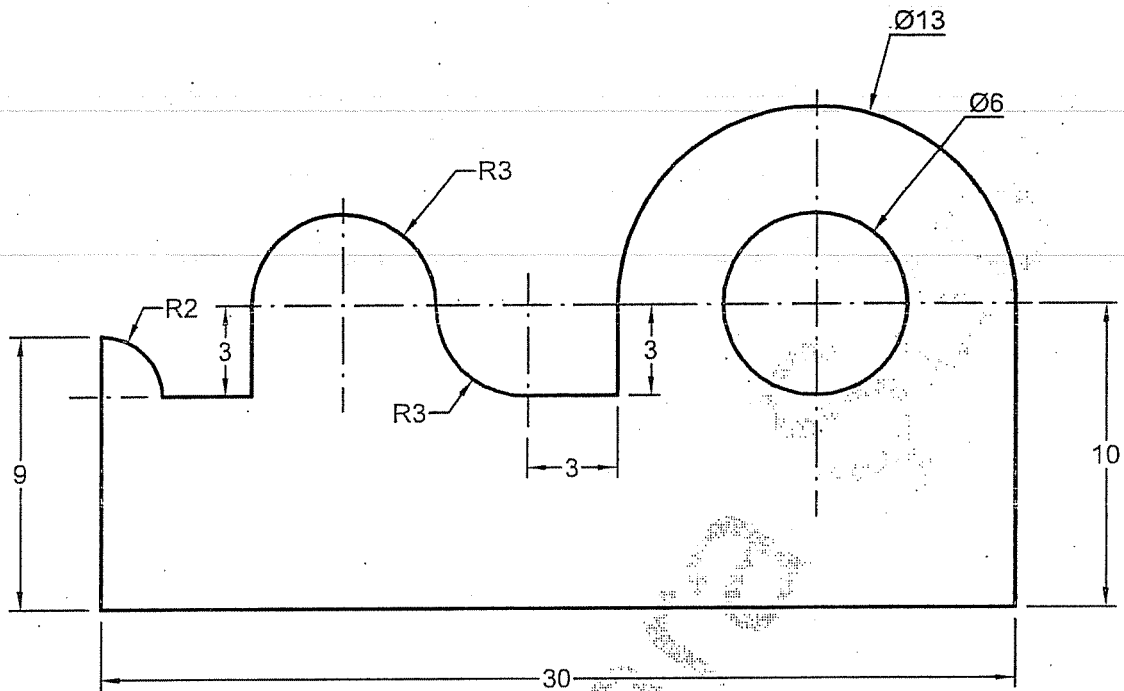
Resim No:
2B-080

Konu:

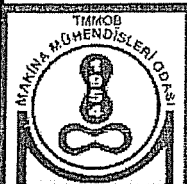
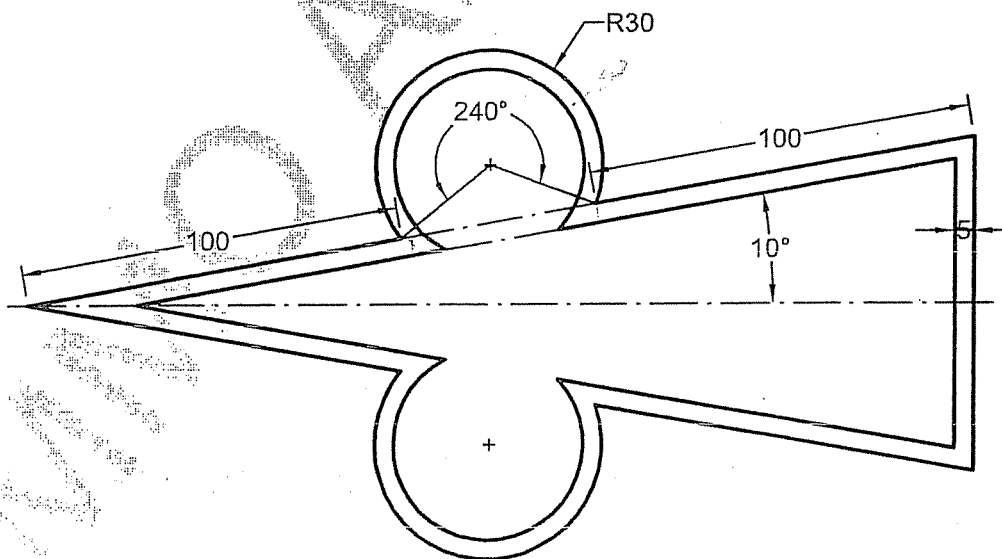
İki Boyutlu Genel Uygulama

Hatırlatmalar:

Autodesk



ÖLÇEK 1 : 2
METRİK



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:

2B-085

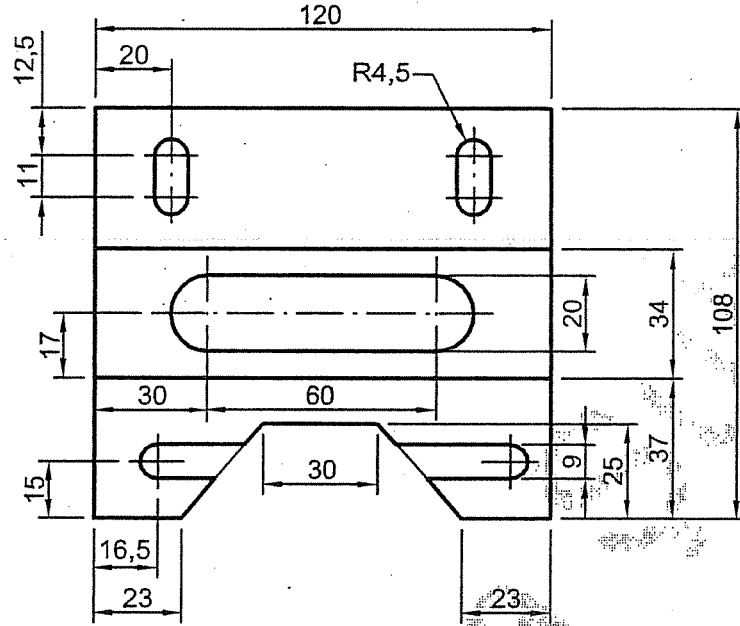
Копи:

Yay Komutu

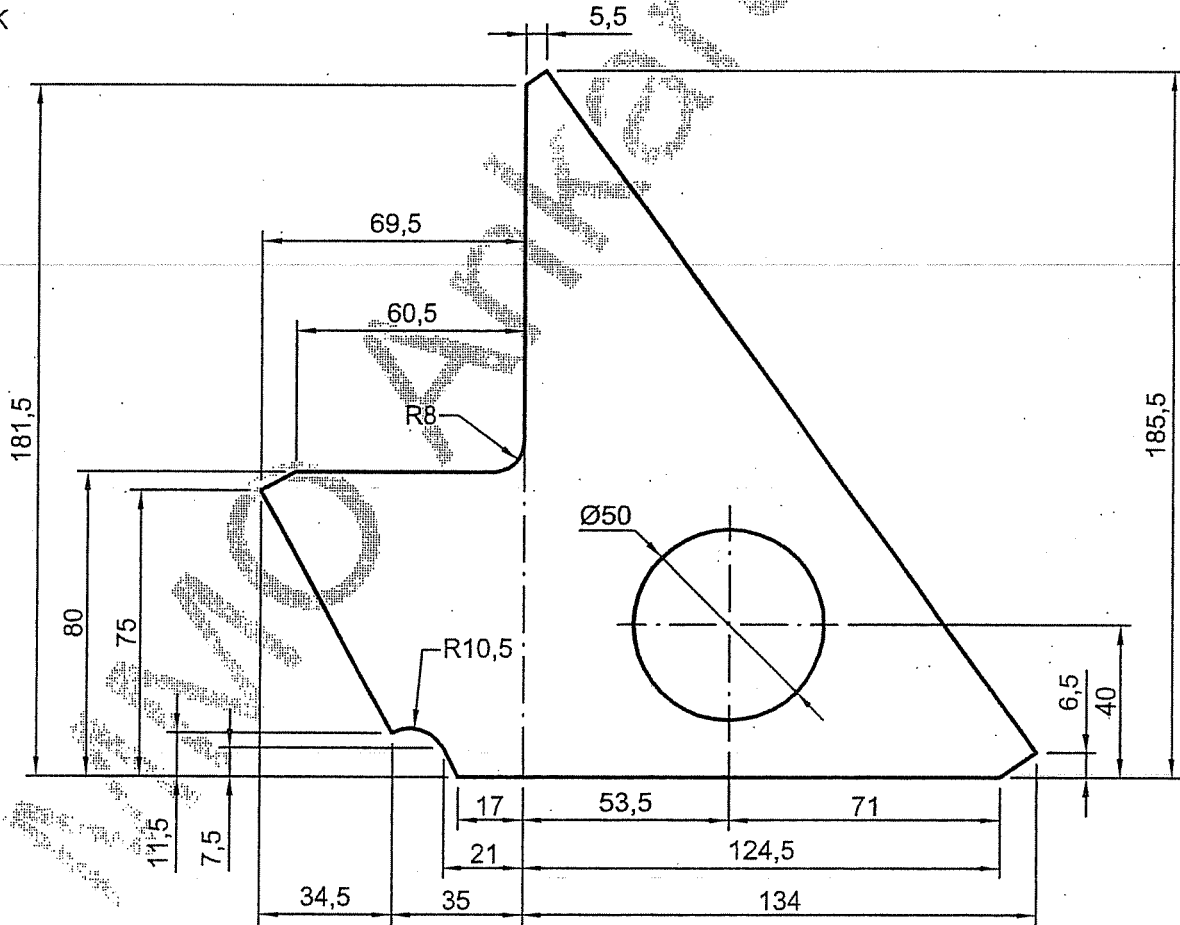
Hatırlatmalar: Çizgi-Yay Sürekliliği Özelliği,
Offset Komutunun Polyline Opsiyonu

ÖLÇEK 1:2
METRİK

Autodesk



ÖLÇEK 1:2
METRİK



Osman Günhan Bayat
Arda İskenderoğlu

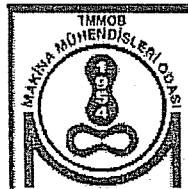
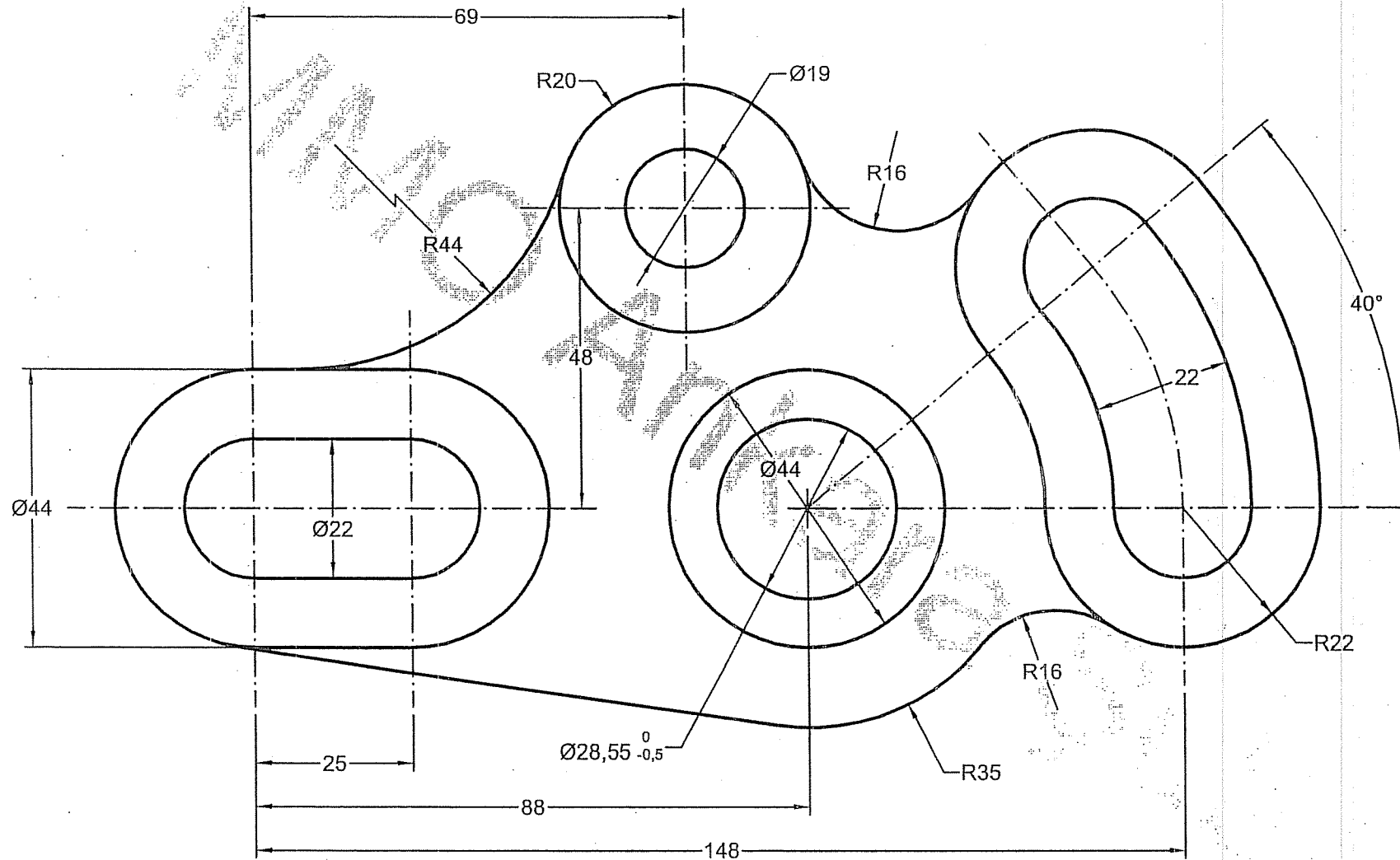
Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-090

Konu:
Genel Çizim Uygulaması

Hatırlatmalar:

Autodesk



Resim No: 2B-095

Hatırlatmalar:

Autodesk

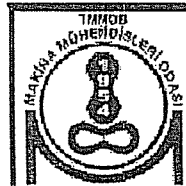
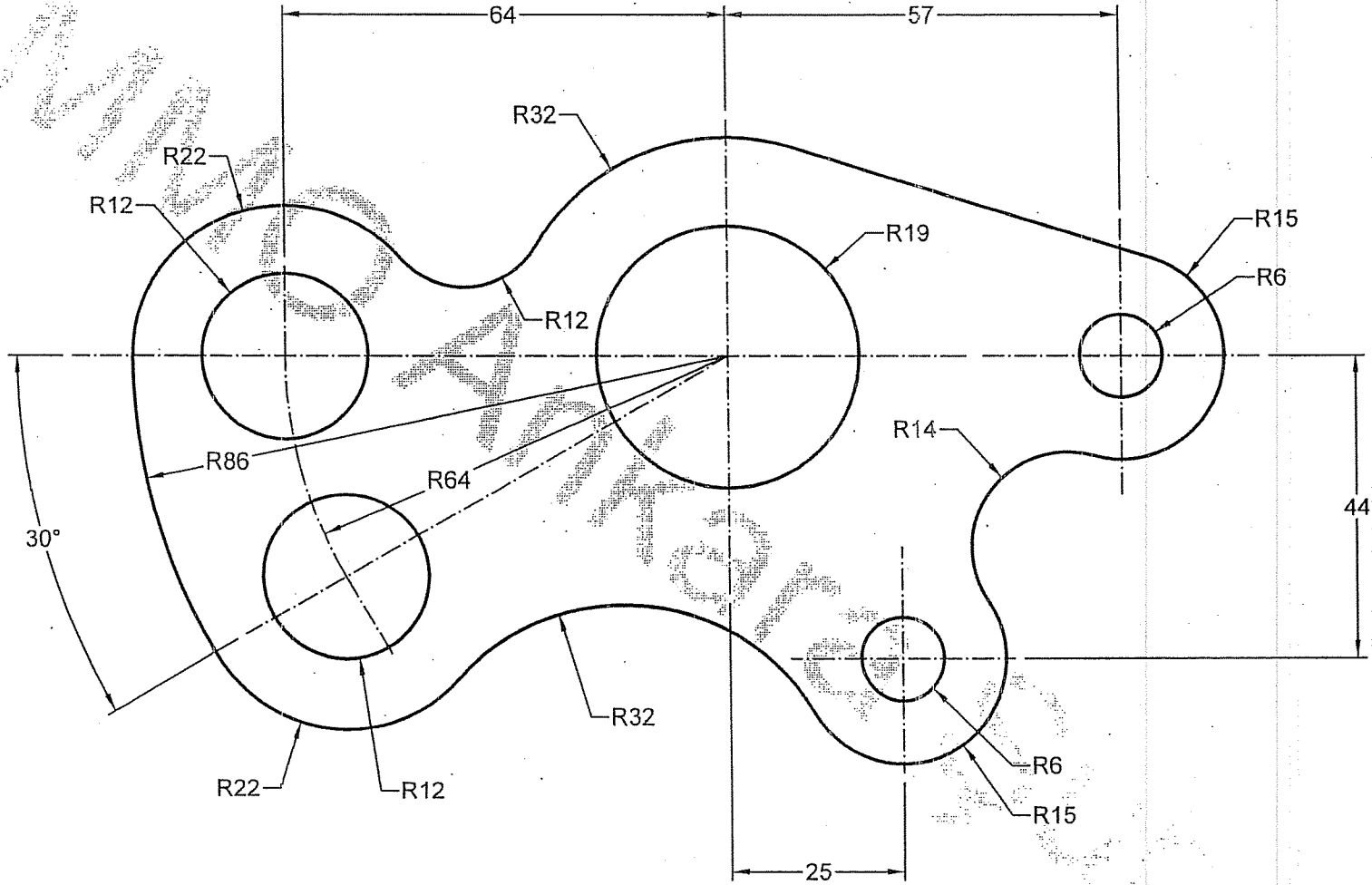


2B-100

Hatırlatmalar:

ÖLÇEK 1:1
METRİK

Autodesk



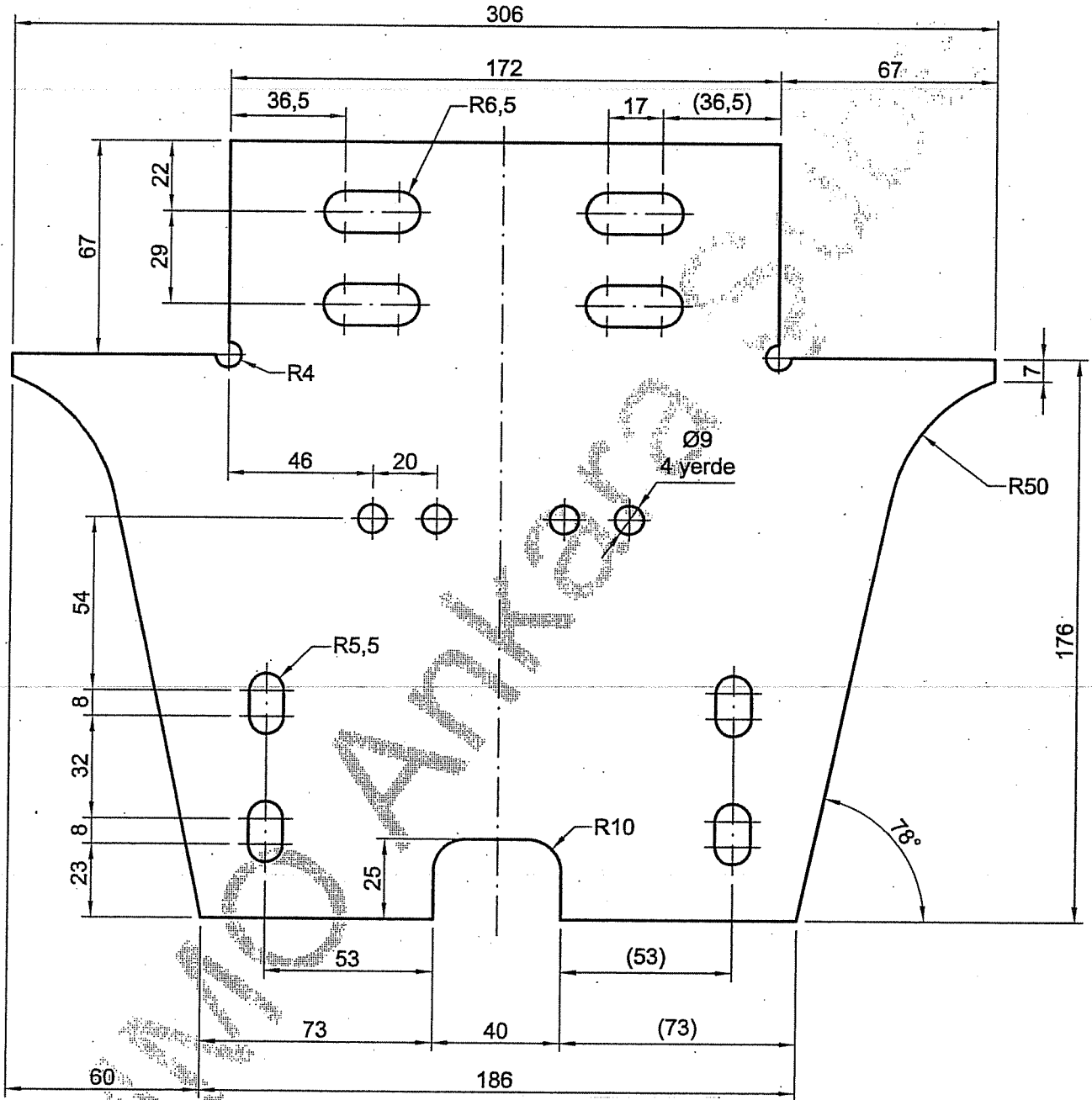
Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-105

Konu:
Genel Çizim Uygulaması

Hatırlatmalar: Çember komutunun TTR
seçeneği ve Budama komutu



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:

2B-110

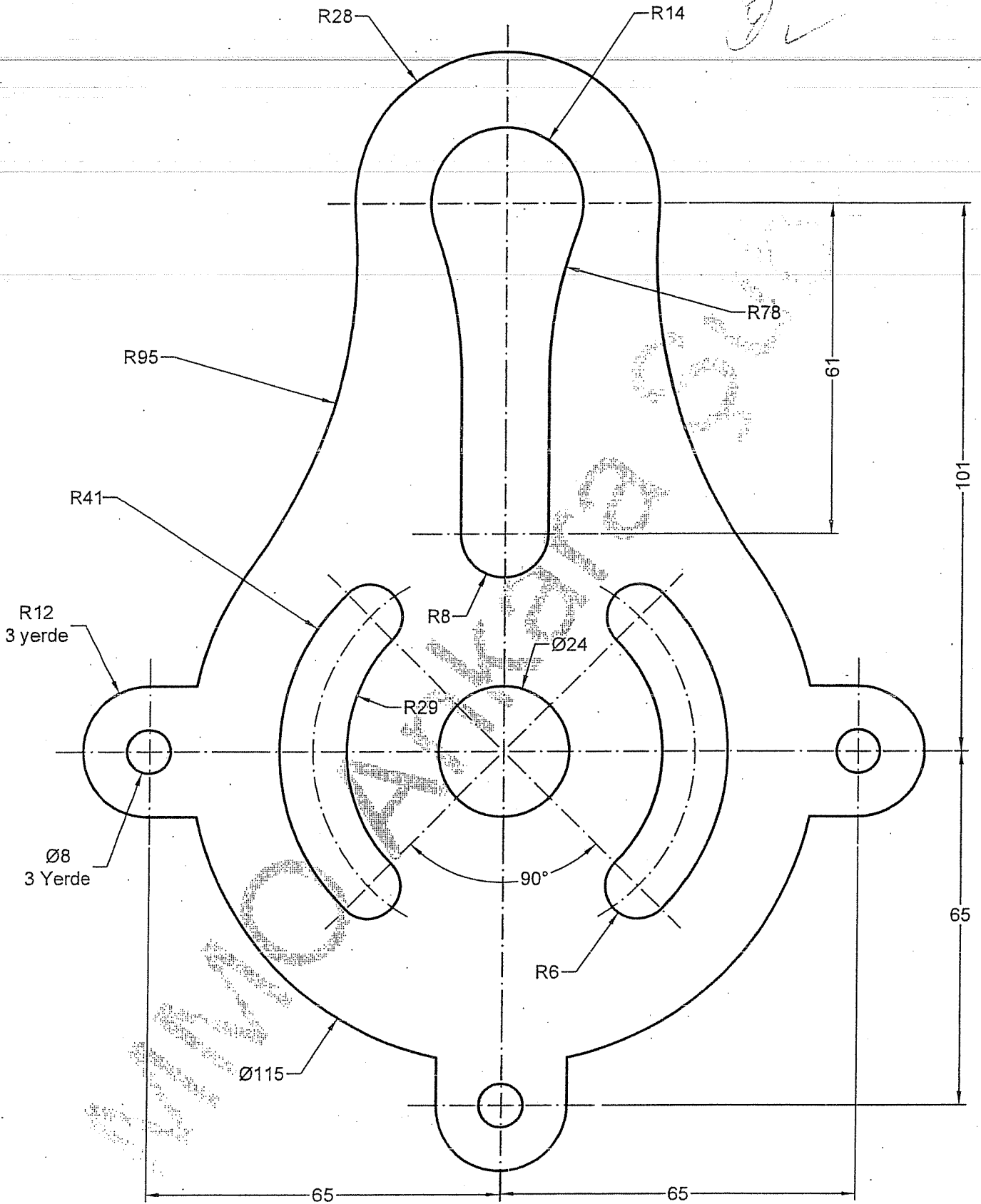
Konu:

Genel Çizim Uygulaması

Hatırlatmalar:

ÖLÇEK 1:1
METRİK

Autodesk



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-115

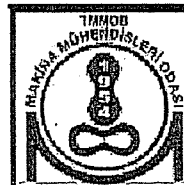
Konu:

Genel Çizim Uygulaması

Hatırlatmalar:

İzleme Yöntemleri

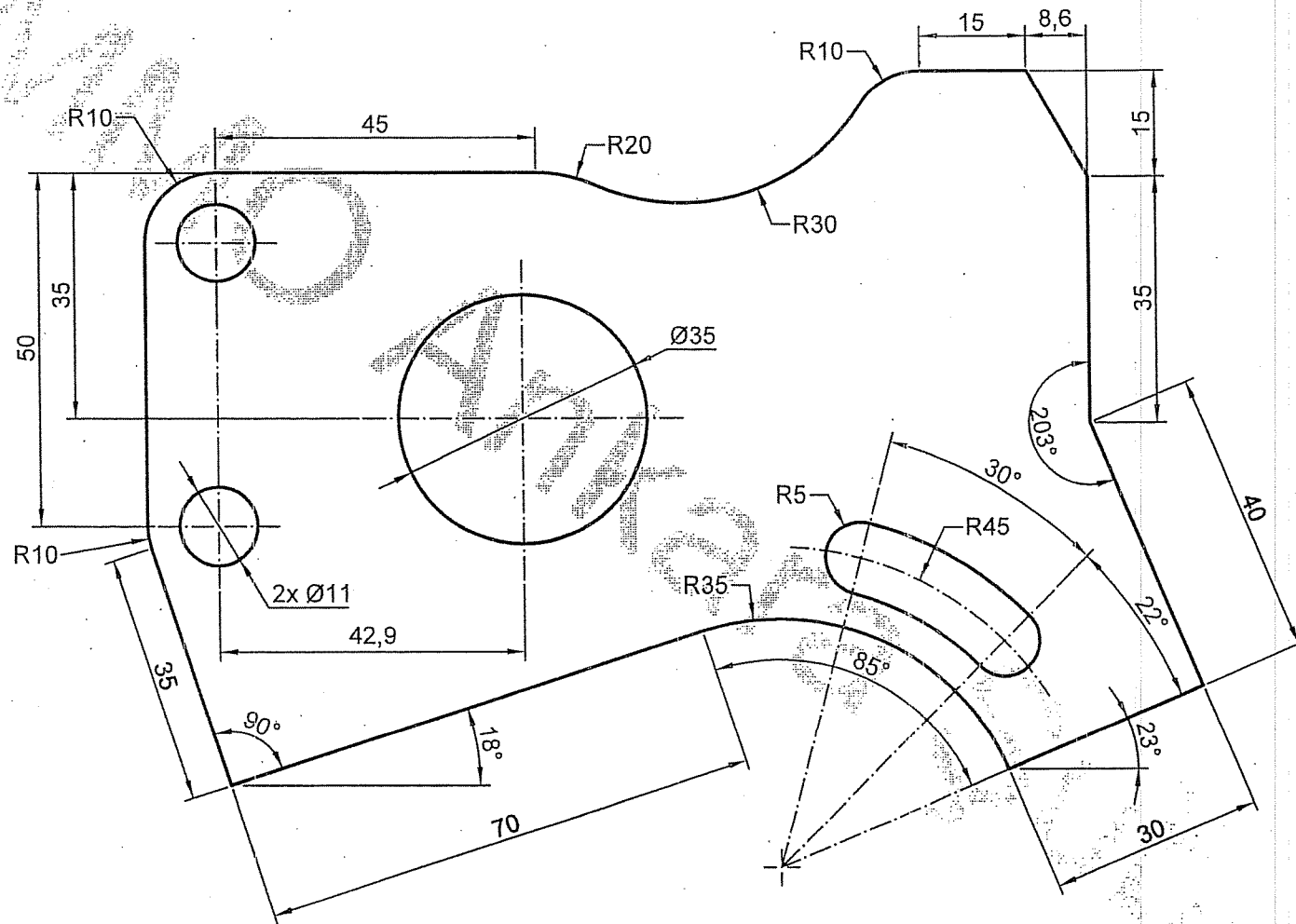
Autodesk®



Resim No: 2B-120

Hatırlatmalar: Çember komutunun TTR
(Teğet-Teğet-Yarıçap) opsionu

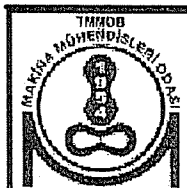
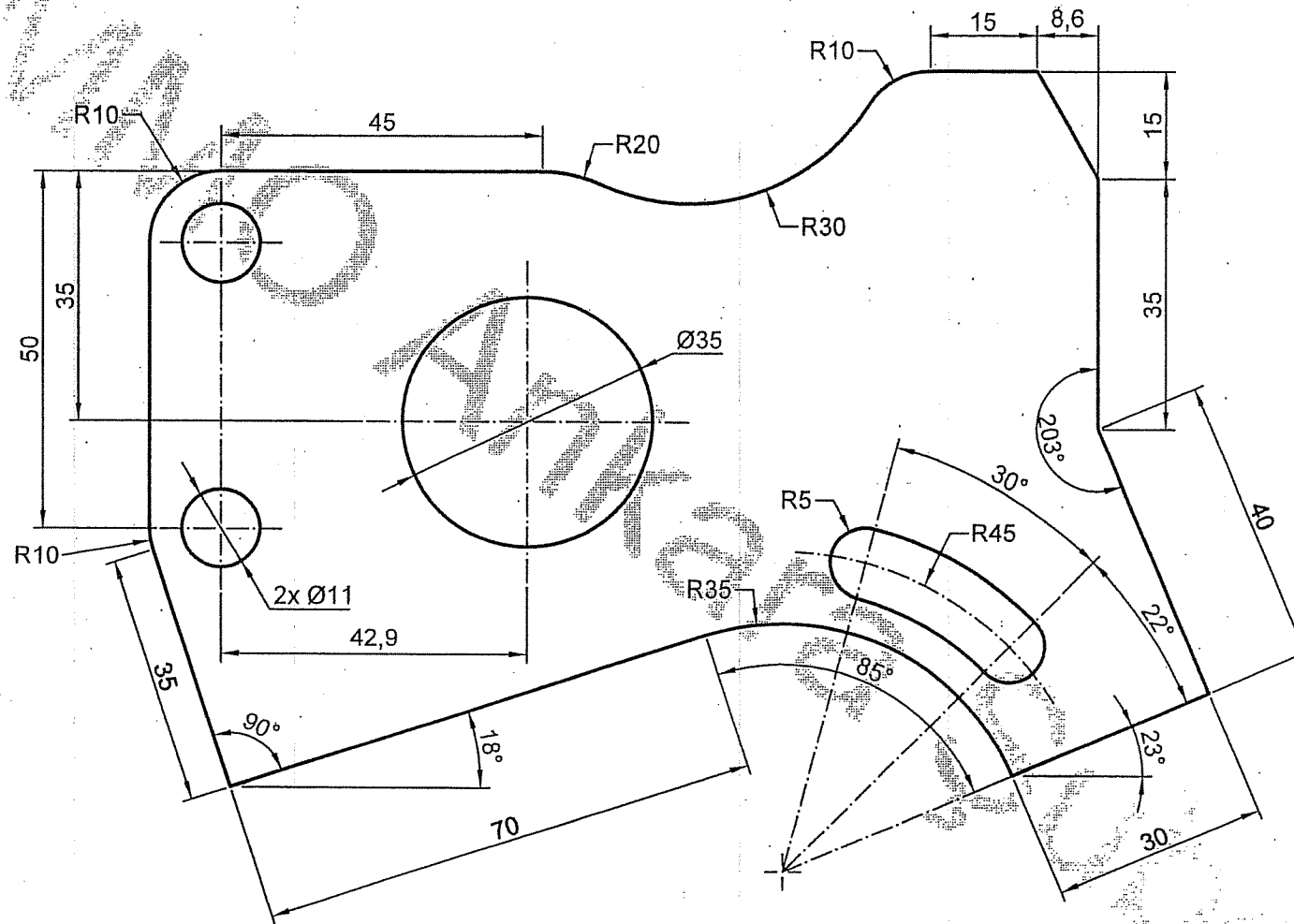
Autodesk®



Resim No: 2B-125

Hatırlatmalar:

Autodesk®



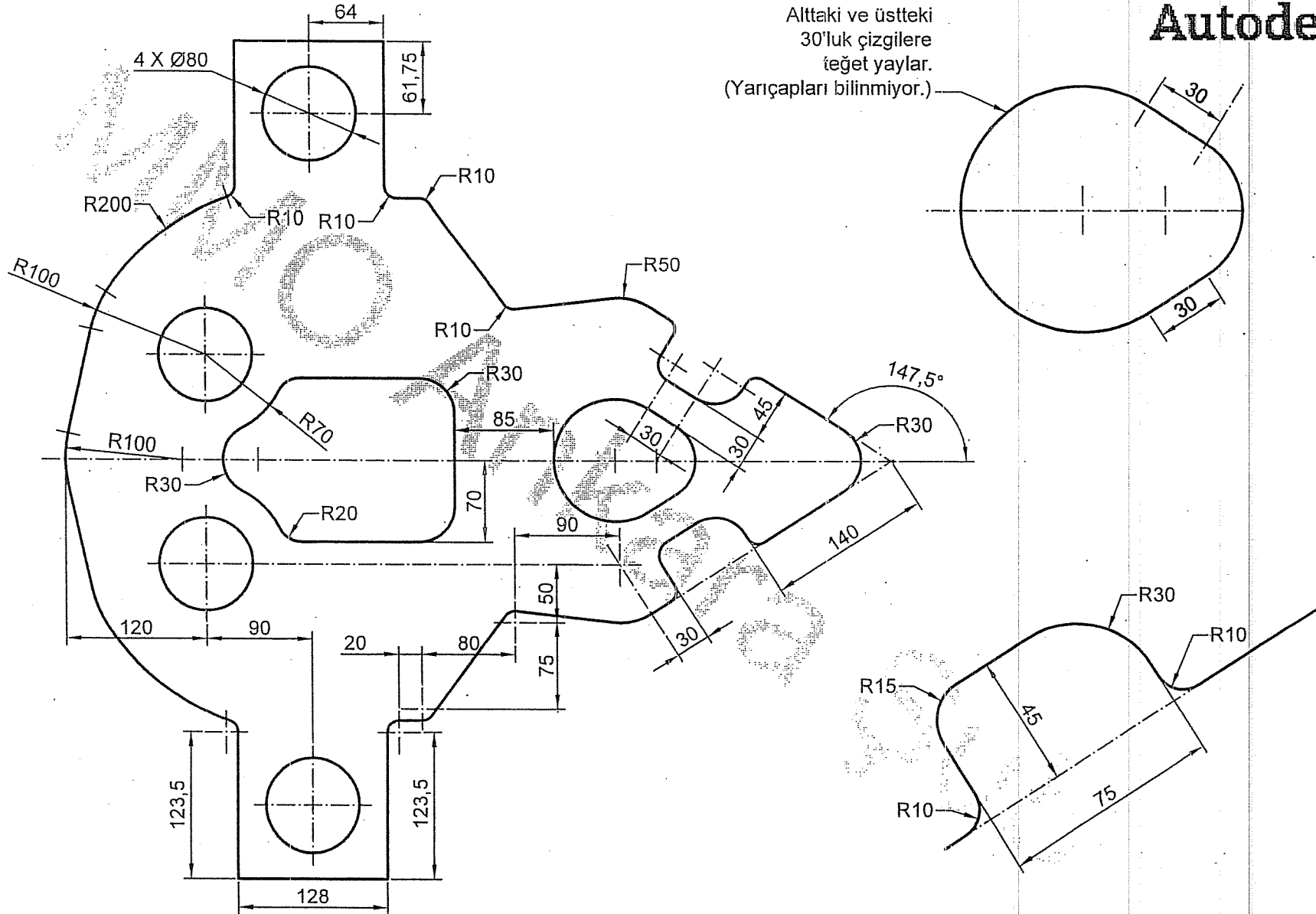
Makina Mühendisleri Odası
Ankara Şube

Resim No: 2B-125

Genel Çizim Uygulaması

Hatırlatmalar:

ÖLÇEK 1:5
METRİK



Osman Günhan Bayat
Serkan Çiçek

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-135

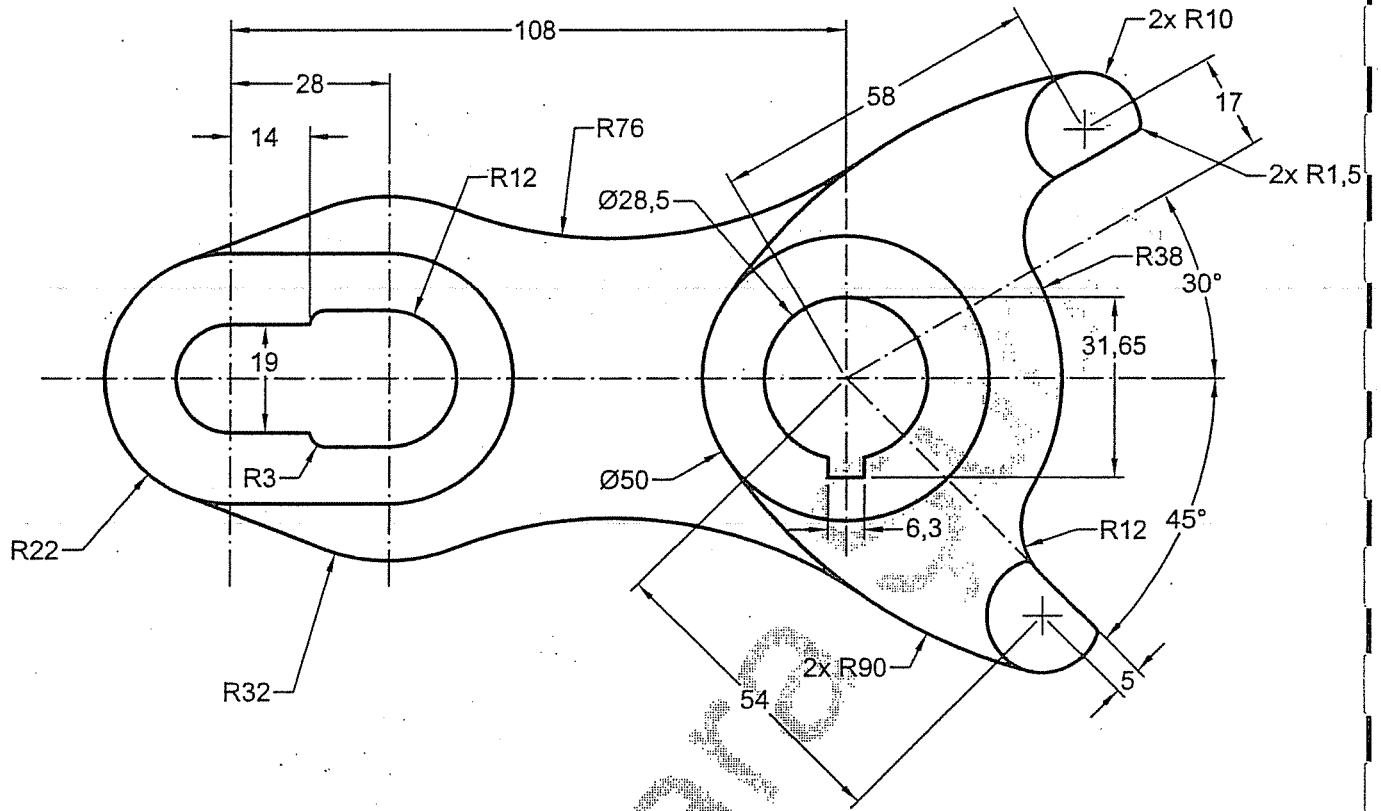
Konu:

Genel Çizim Uygulaması

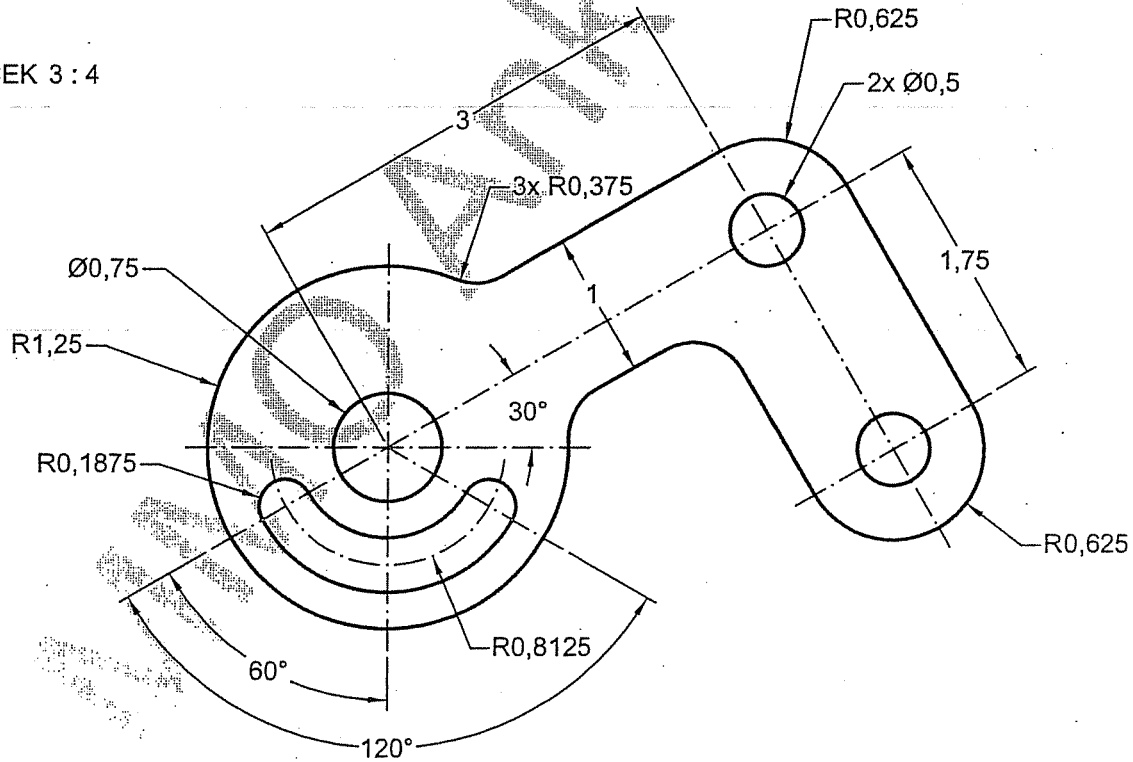
Hatırlatmalar:

ÖLÇEK 3 : 4
METRİK

Autodesk



ÖLÇEK 3 : 4
İNÇ



Osman Günhan Bayat
Zafer Emre Ergün

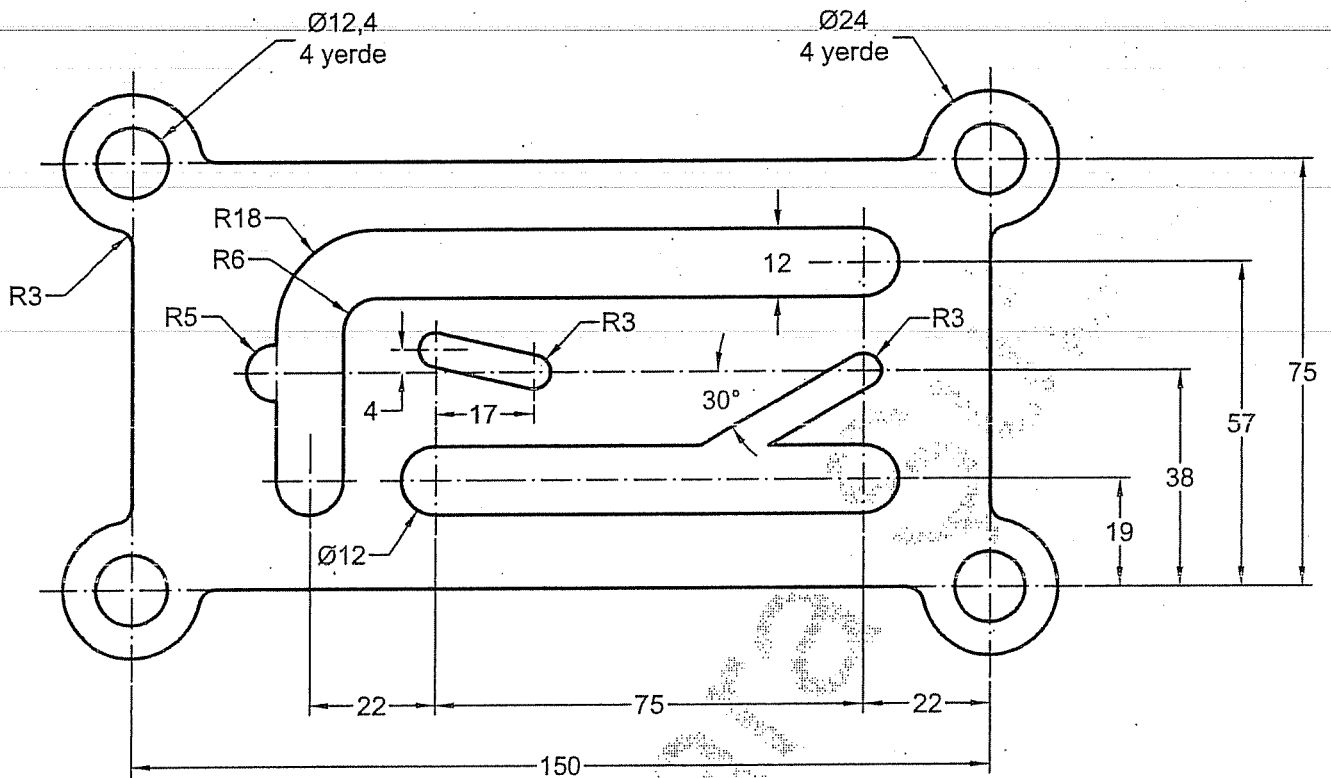
Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-140

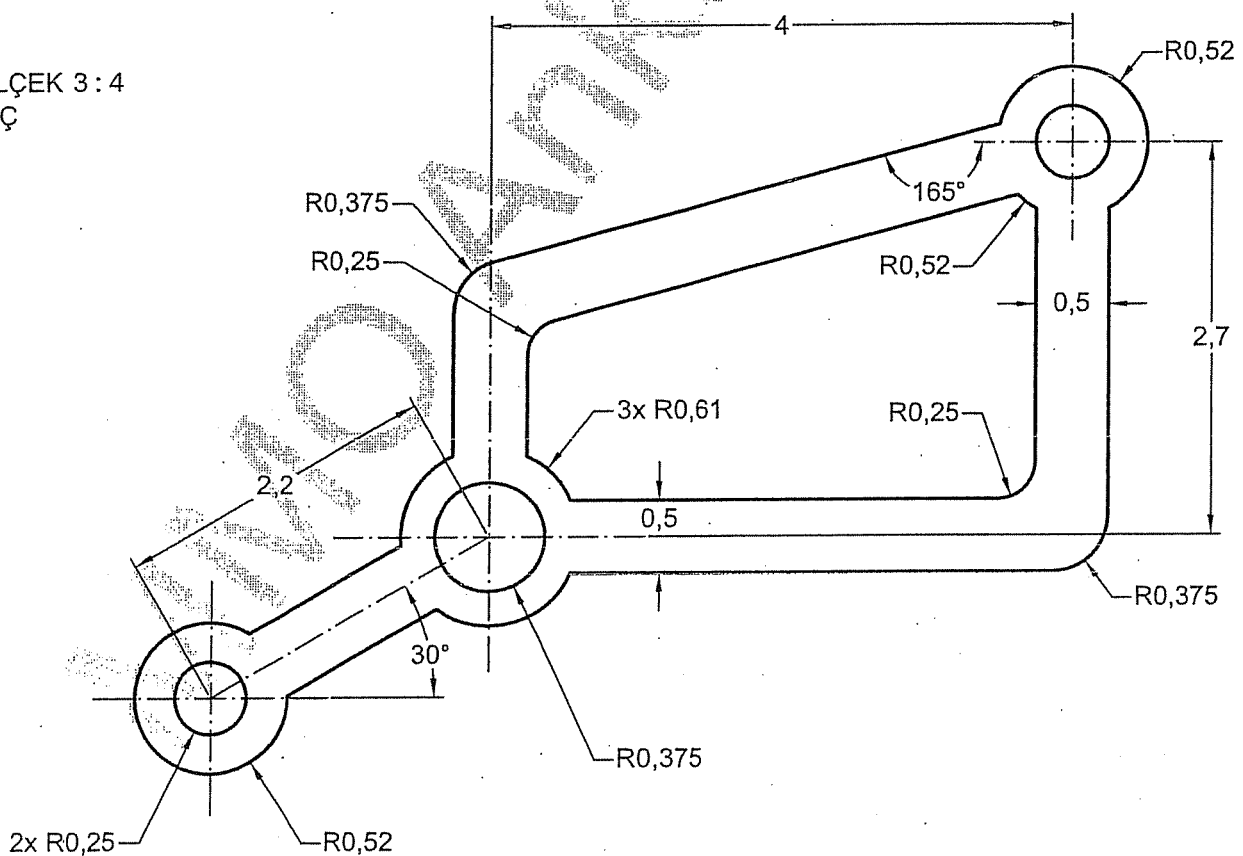
Konu:

Genel Çizim Uygulaması

Hatırlatmalar:

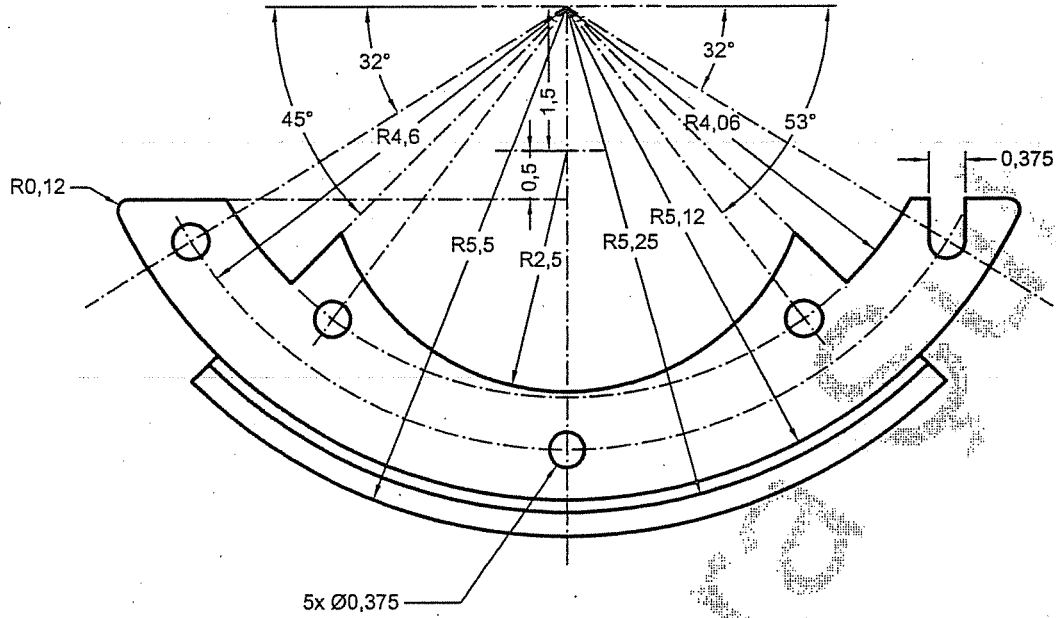


ÖLÇEK 3 : 4
İNÇ

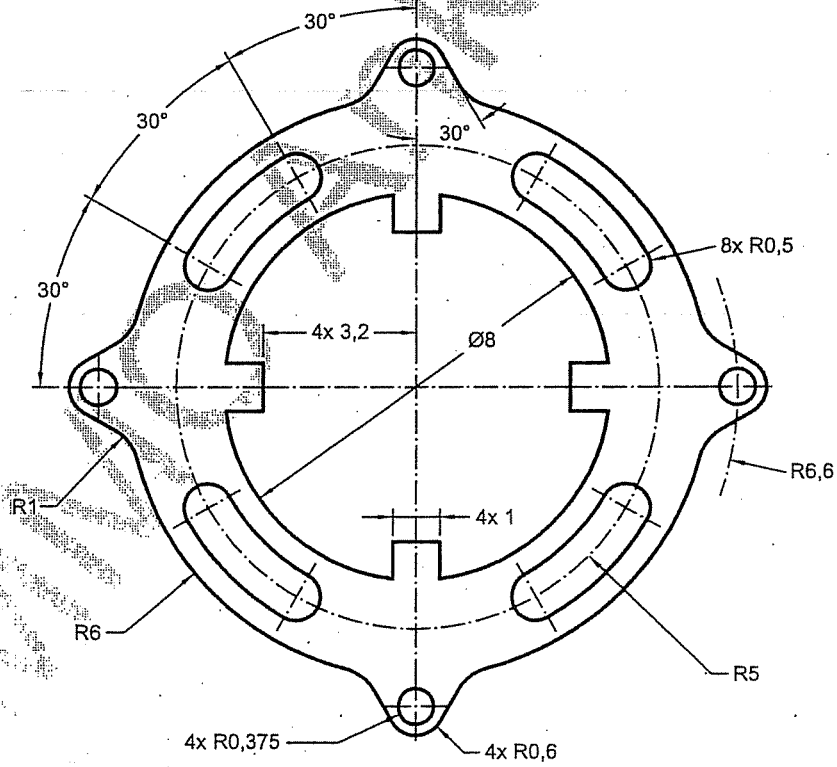


ÖLÇEK 1:2
İNÇ

Autodesk



ÖLÇEK 1:4
İNÇ



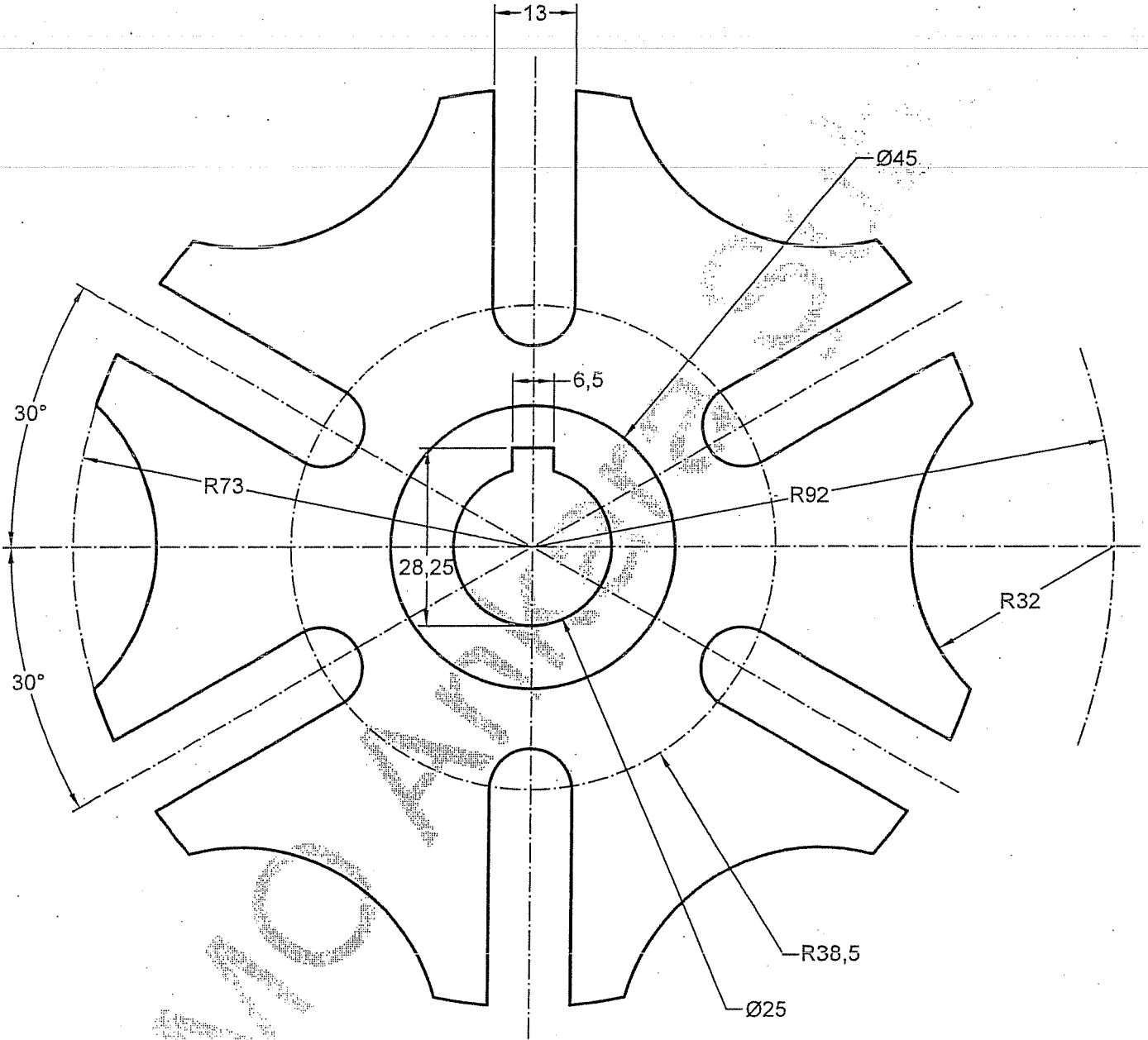
Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-150

Konu:
Genel Çizim Uygulaması

Hatırlatmalar:



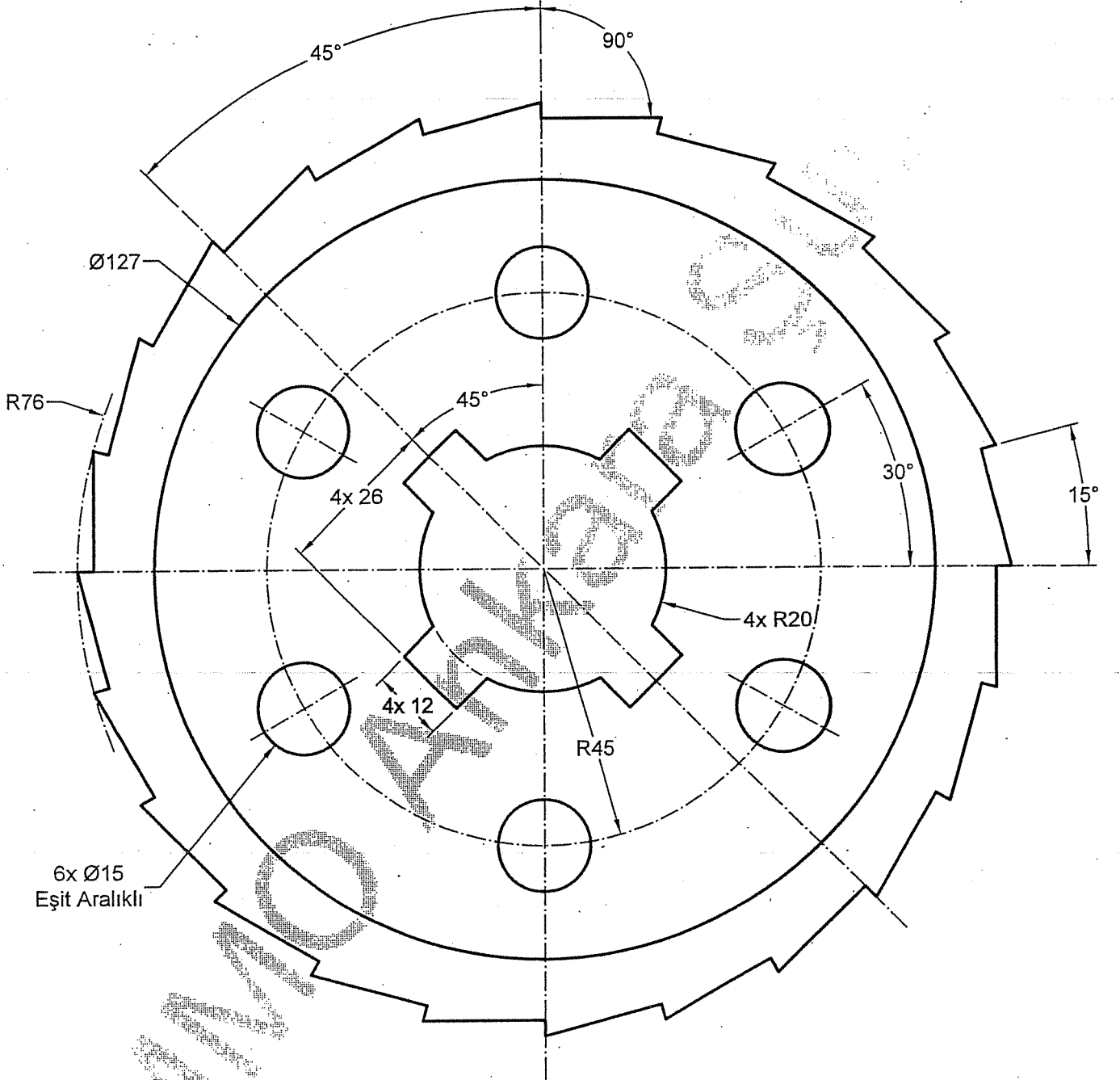
Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-155

Konu:
Dairesel Çoğaltma (Polar Array) Komutu

Hatırlatmalar:



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

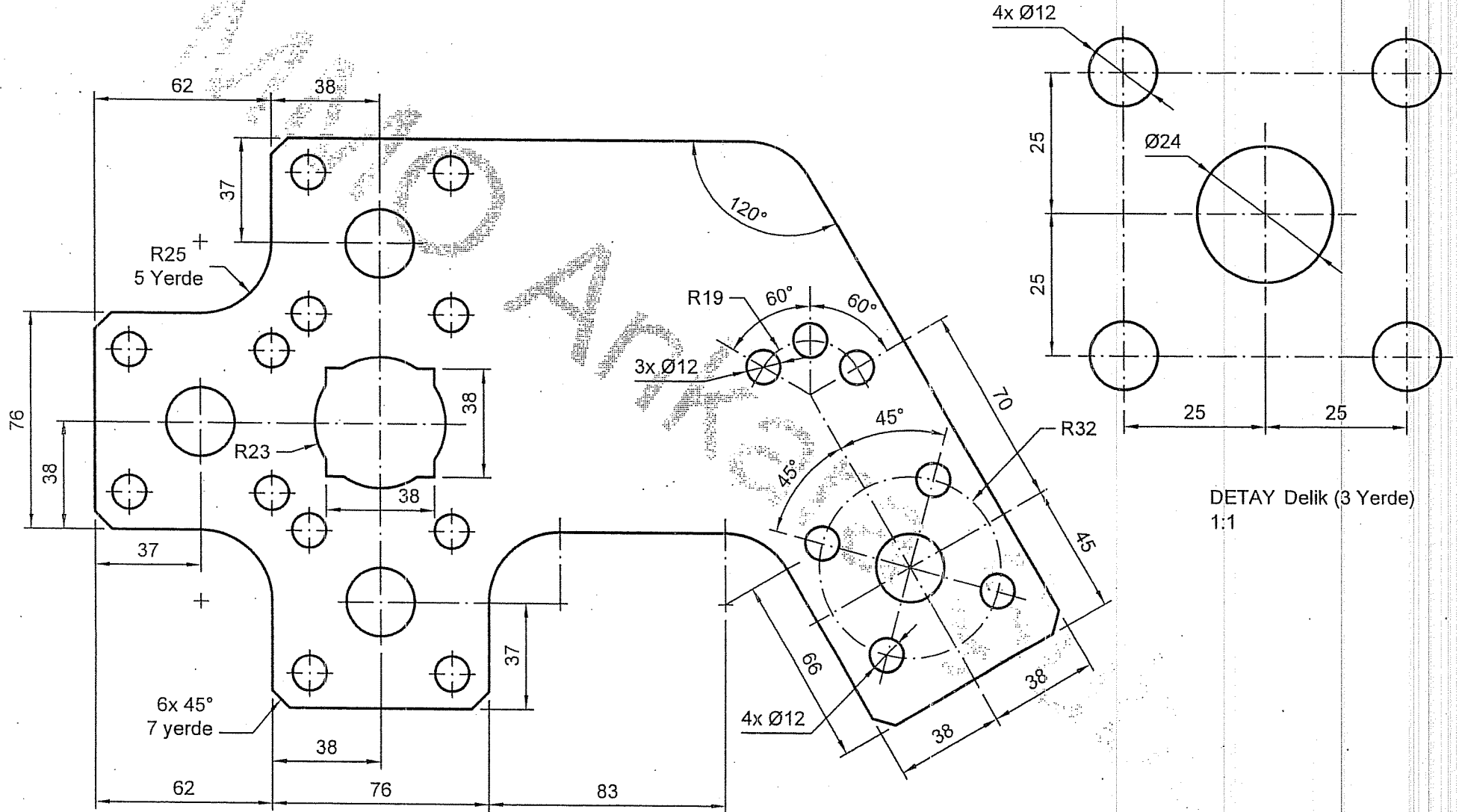
Resim No:
2B-160

Konu:
Açısal Çoğaltma (Polar Array) Uygulaması

Hatırlatmalar:

ÖLÇEK 1:2
METRİK

Autodesk



Osman Günhan Bayat
Abdurrahman Kuşun

Makina Mühendisleri Odası
Ankara Şube

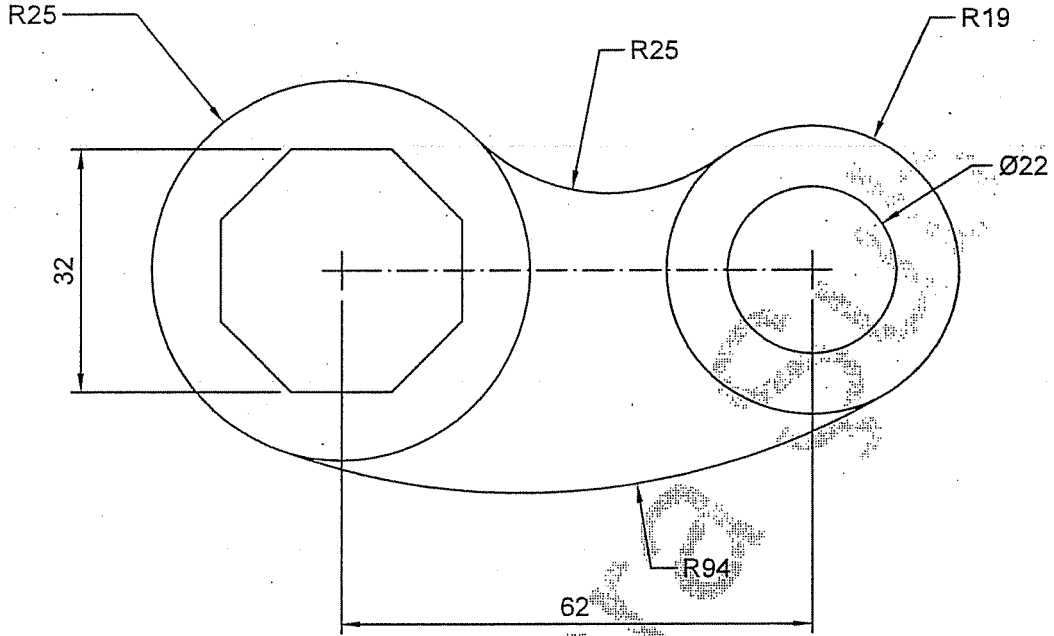
Resim No:
2B-165

Konu:
Dizileme ve Kopyalama Komutları

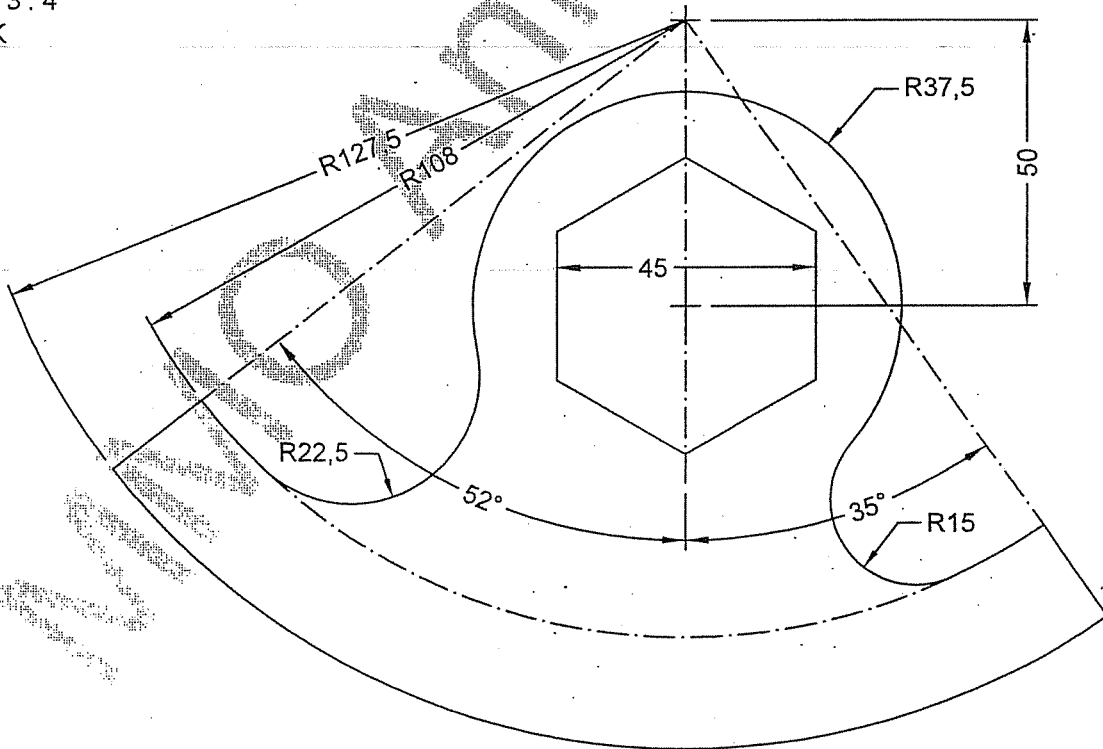
Hatırlatmalar:

ÖLÇEK 1 : 1
METRİK

Autodesk



ÖLÇEK 3 : 4
METRİK



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

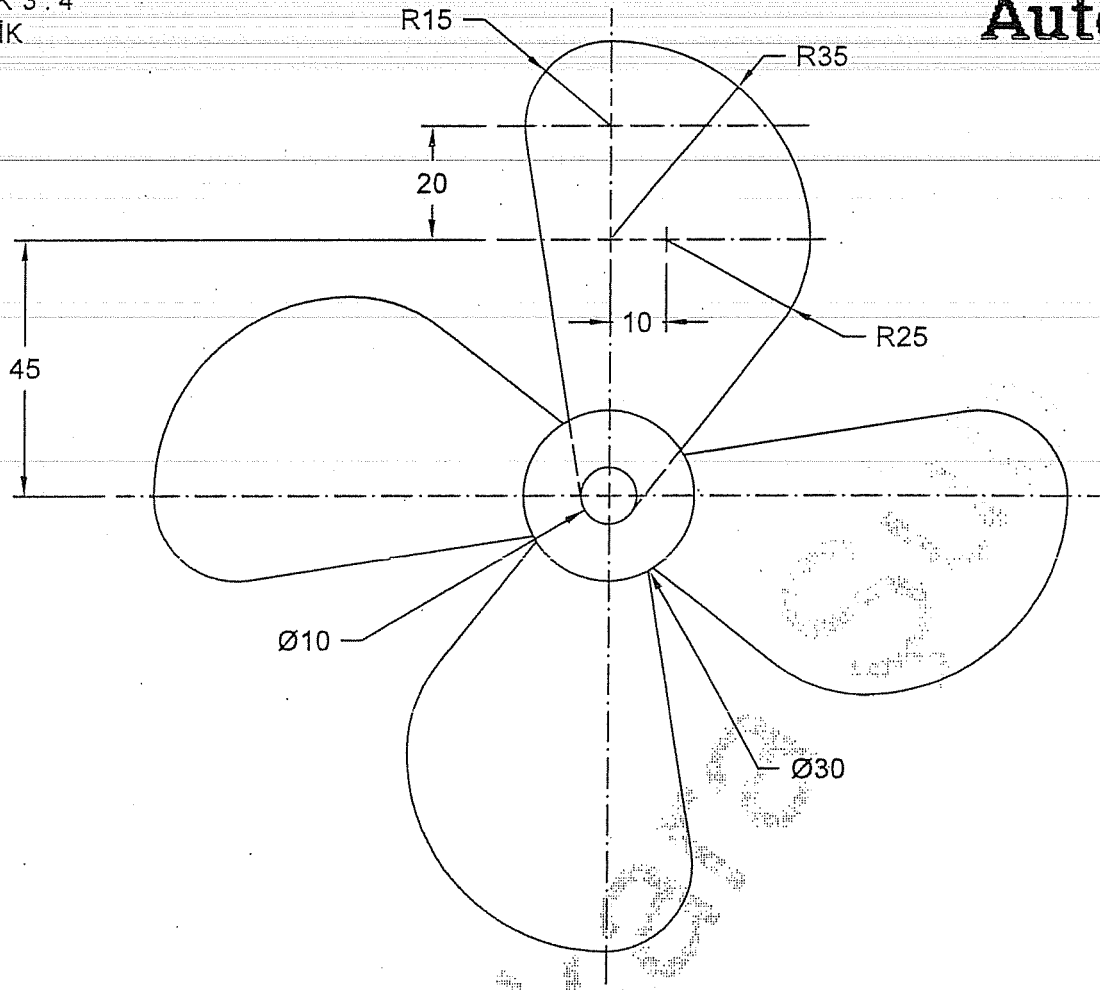
Resim No:
2B-170

Konu:
Çokgen Komutu

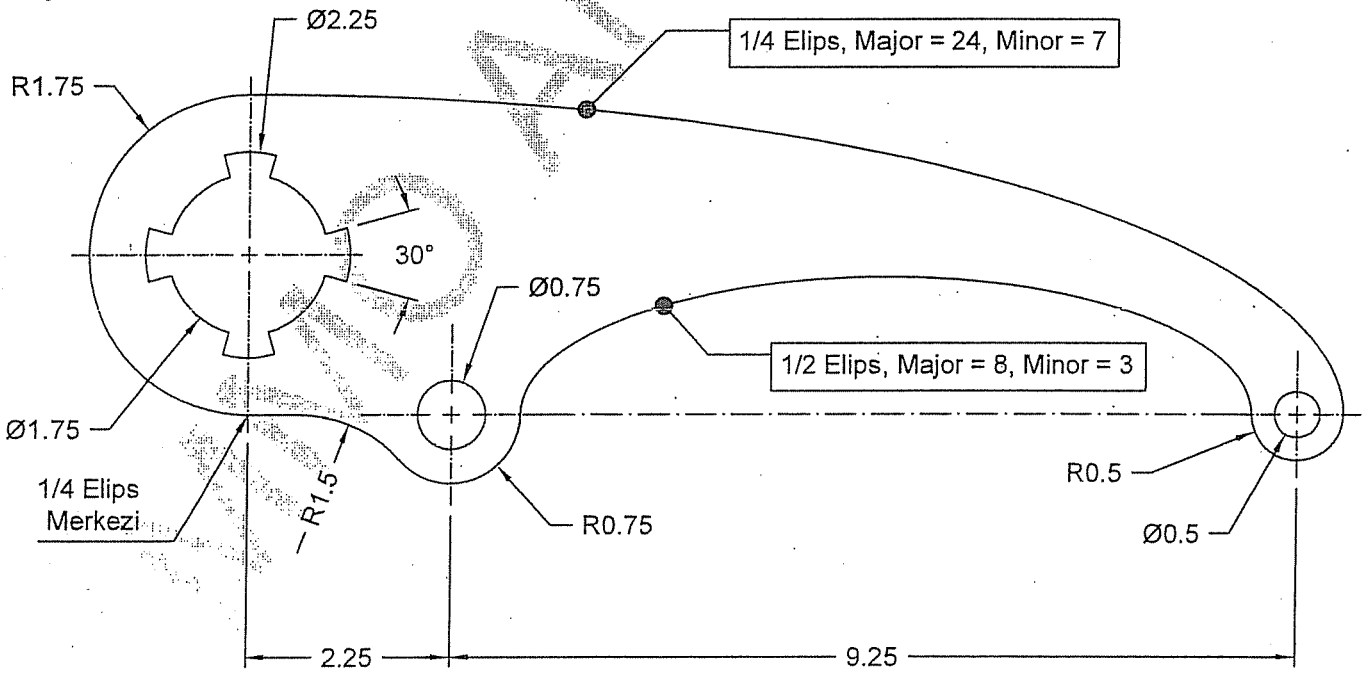
Hatırlatmalar: Çember komutunun TTR
(Teğet-Teğet-Yarıçap) opsiyonu.

ÖLÇEK 3 : 4
METRİK

Autodesk



ÖLÇEK 1 : 2
İNÇ



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-175

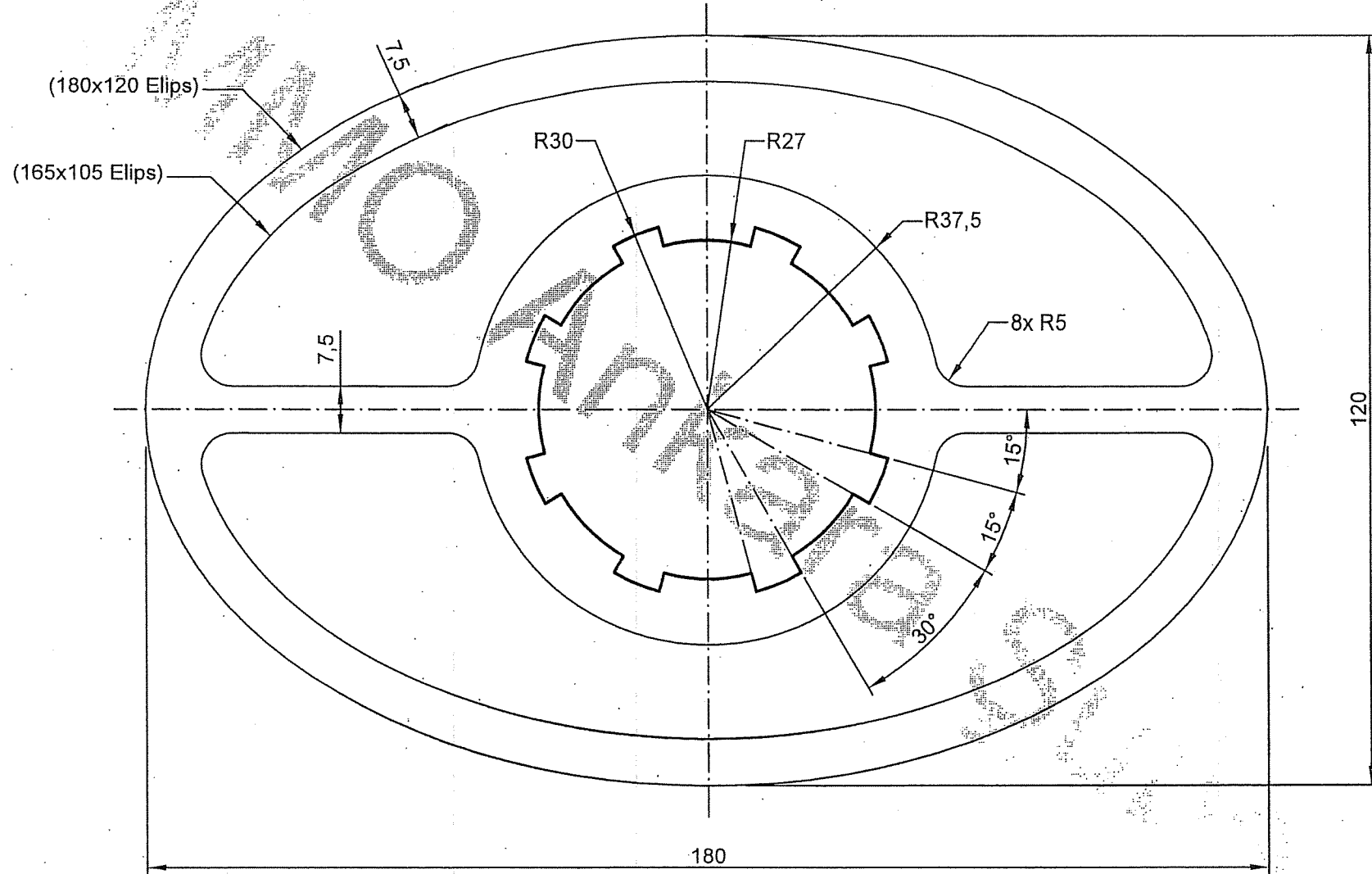
Konu:

Elips ve Çoğaltma Komutları

Hatırlatmalar:

ÖLÇEK 1 : 1
METRİK

Autodesk



NOT: İki elips de gerçek elipstir.
(Offset komutuyla yapılmamıştır.)



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

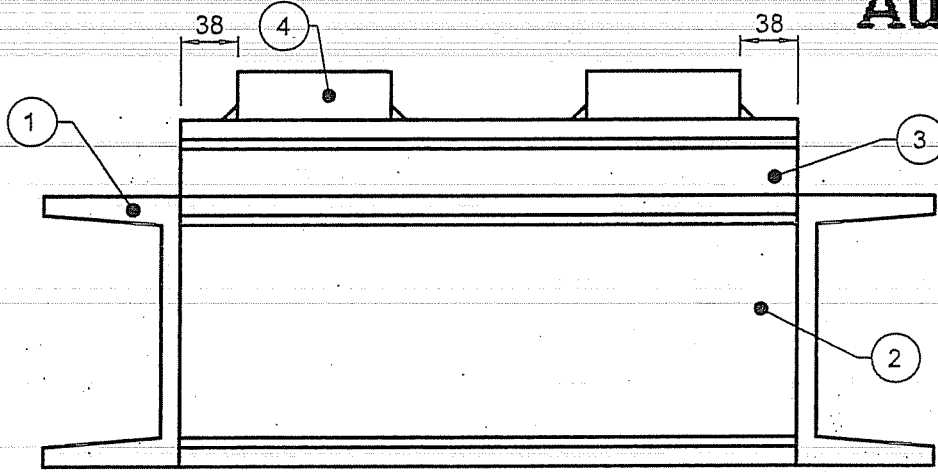
Resim No:
2B-180

Konu:

Elips Komutu

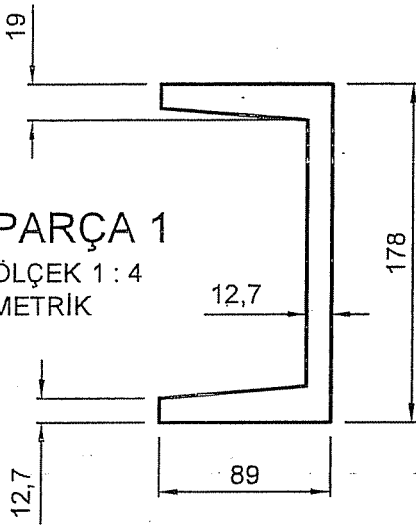
Hatırlatmalar:

ÖLÇEK 1 : 5
METRİK

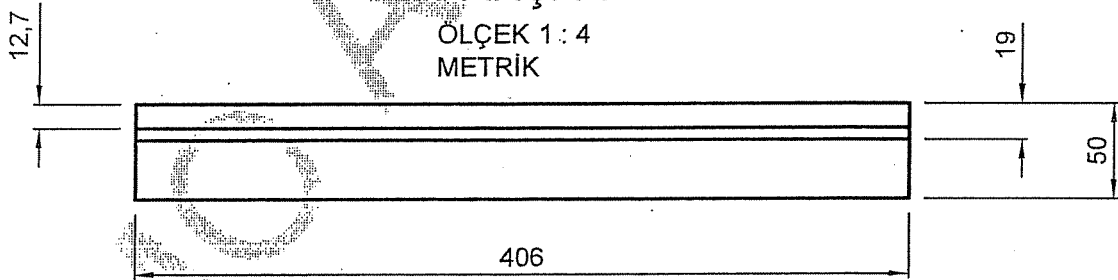


PARÇA 2
ÖLÇEK 1 : 4
METRİK

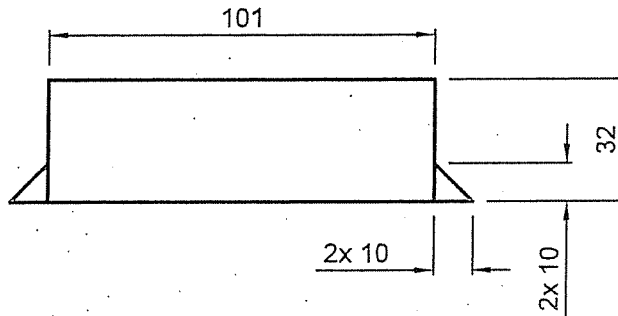
PARÇA 1
ÖLÇEK 1 : 4
METRİK



PARÇA 3
ÖLÇEK 1 : 4
METRİK



PARÇA 4
ÖLÇEK 1 : 4
METRİK



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:

2B-185

Konu:

Blok Kullanımıyla Montaj Uygulaması

Hatırlatmalar:

Blok tanımlama ve yerleştirme.

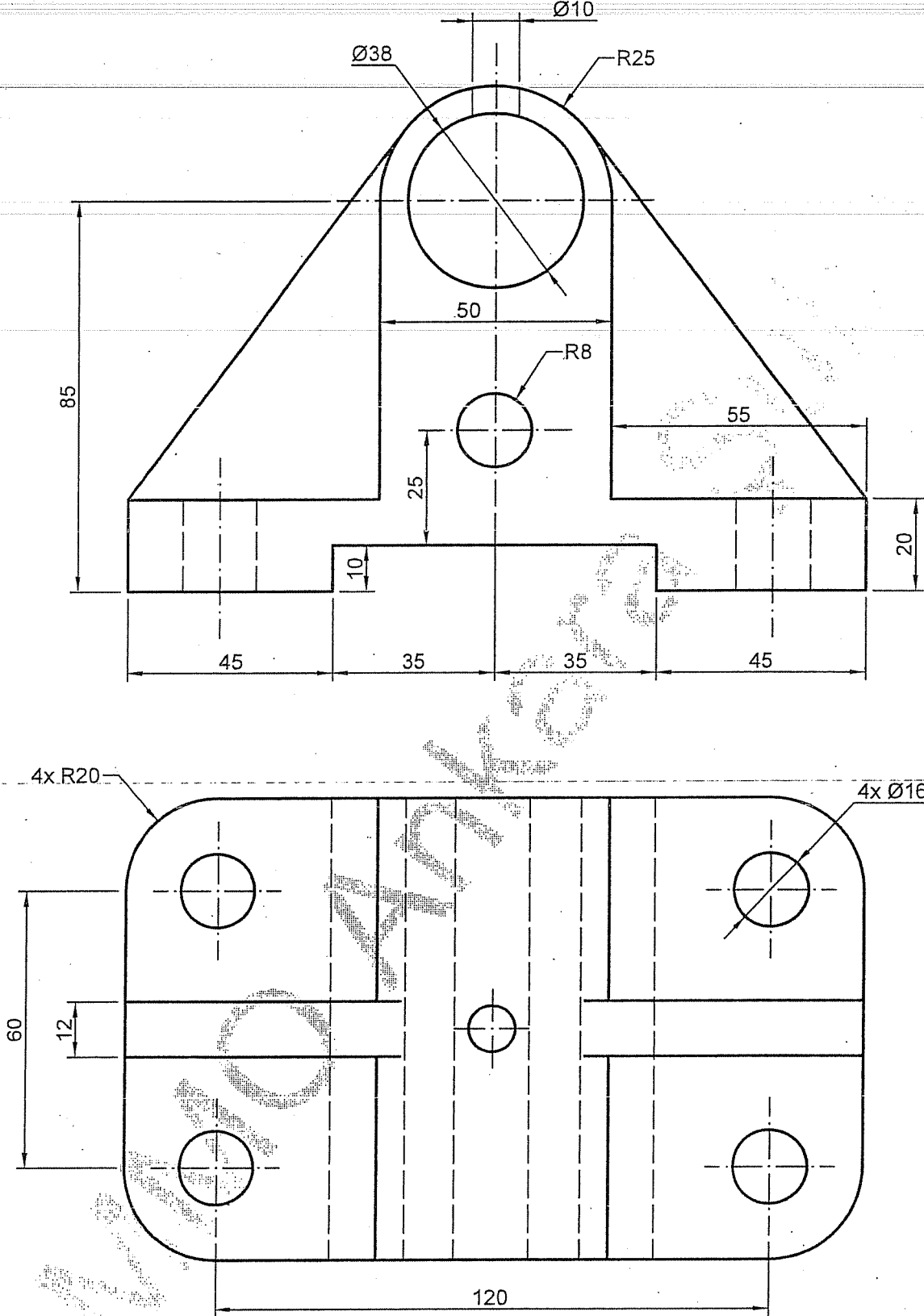
Autodesk®

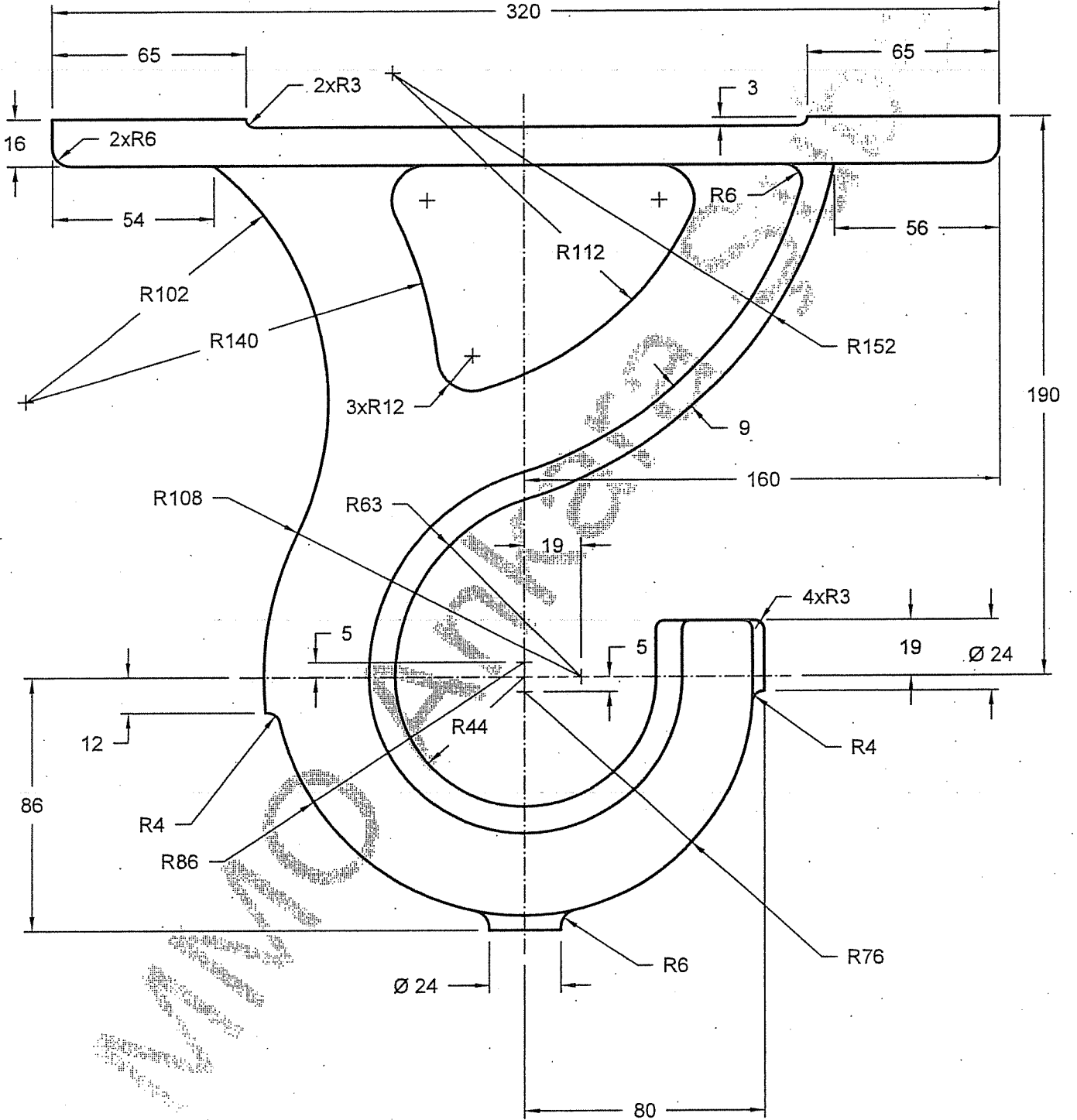


Resim No: 2B-195

Hatırlatmalar:

Genel Çizim Uygulaması





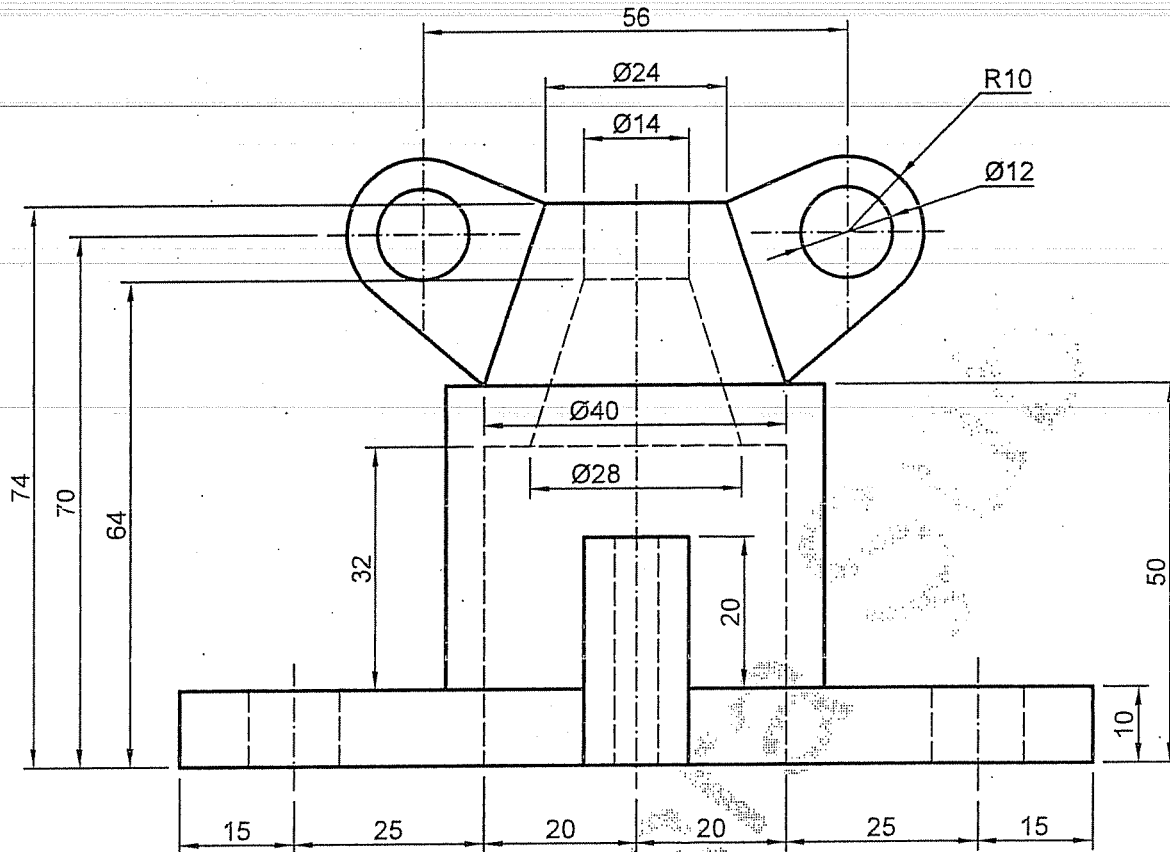
Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

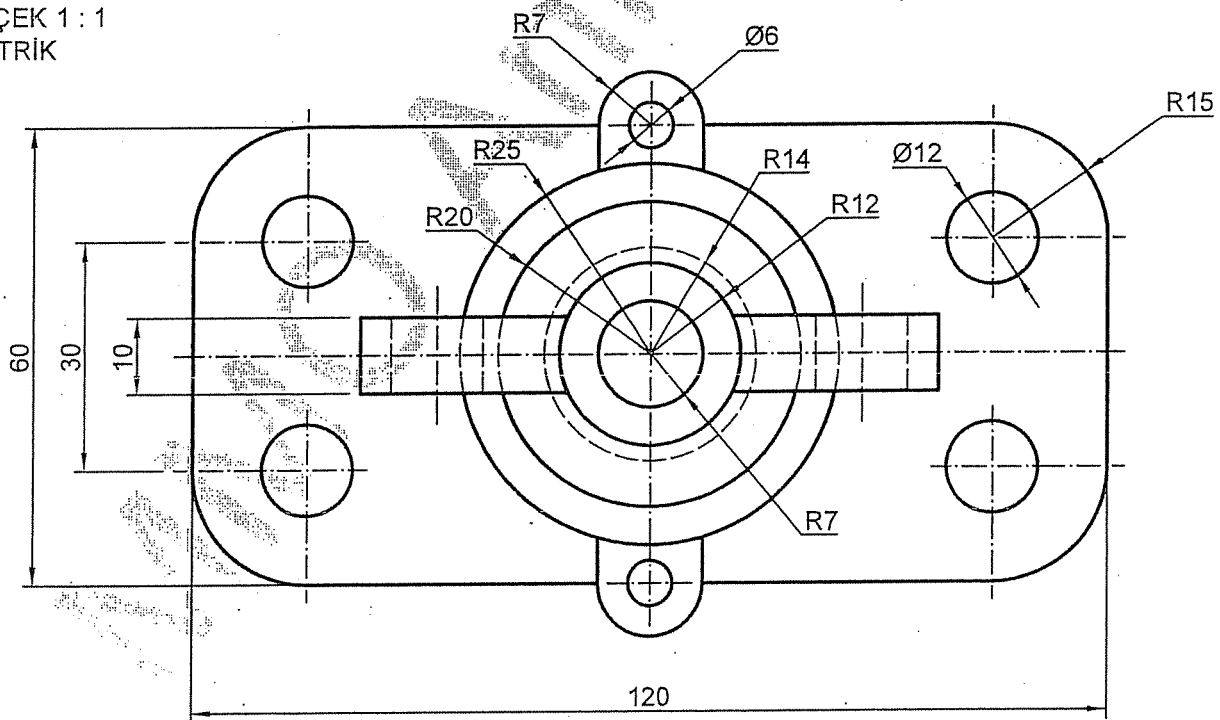
Resim No:
2B-205

Konu:
İki Boyutlu Genel Çizim Uygulaması

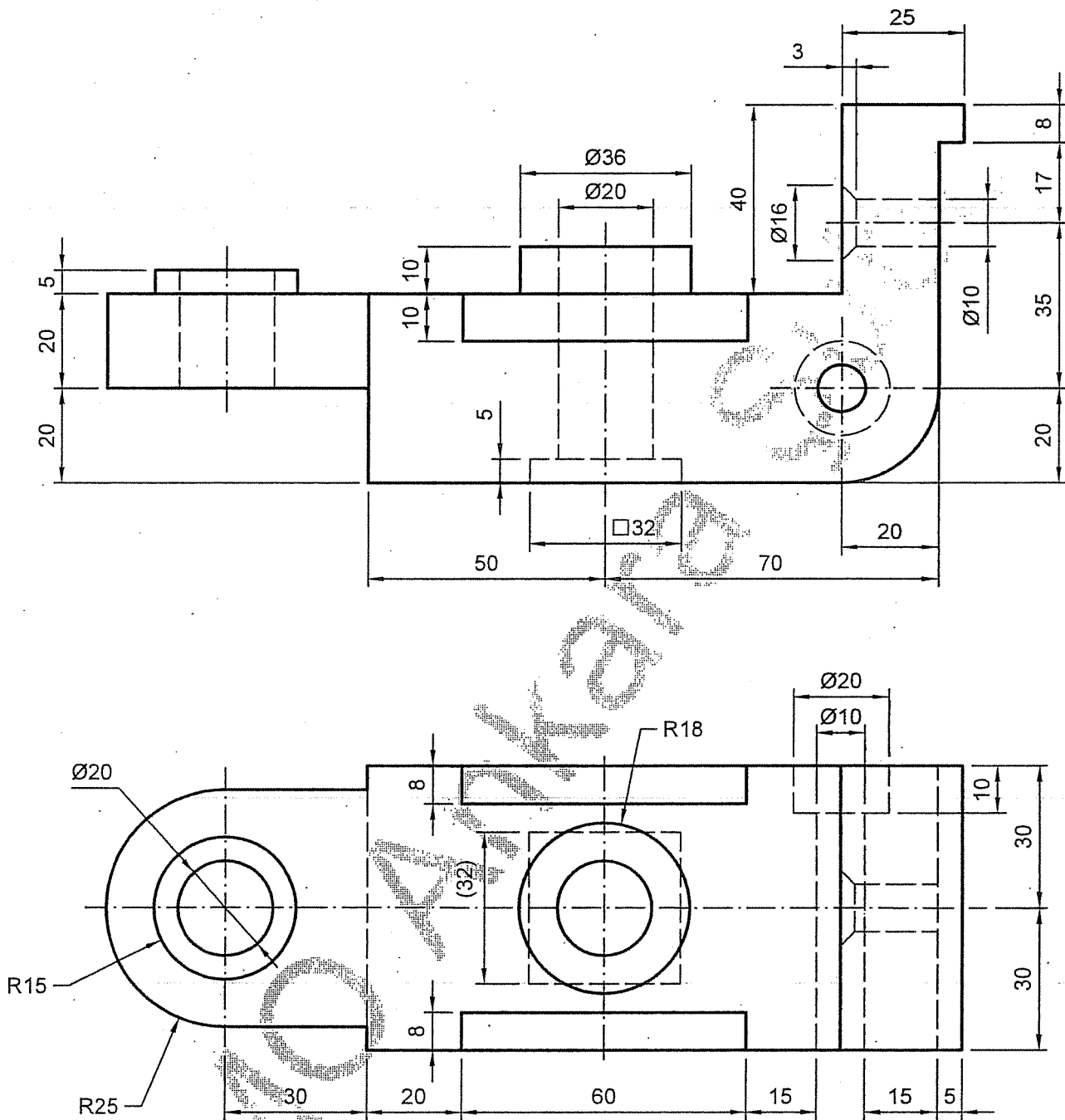
Hatırlatmalar: Bazı yay merkezlerini bulabilmek için yardımcı nesneler çizilebilir.



ÖLÇEK 1 : 1
METRİK

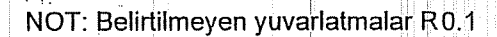


Autodesk®

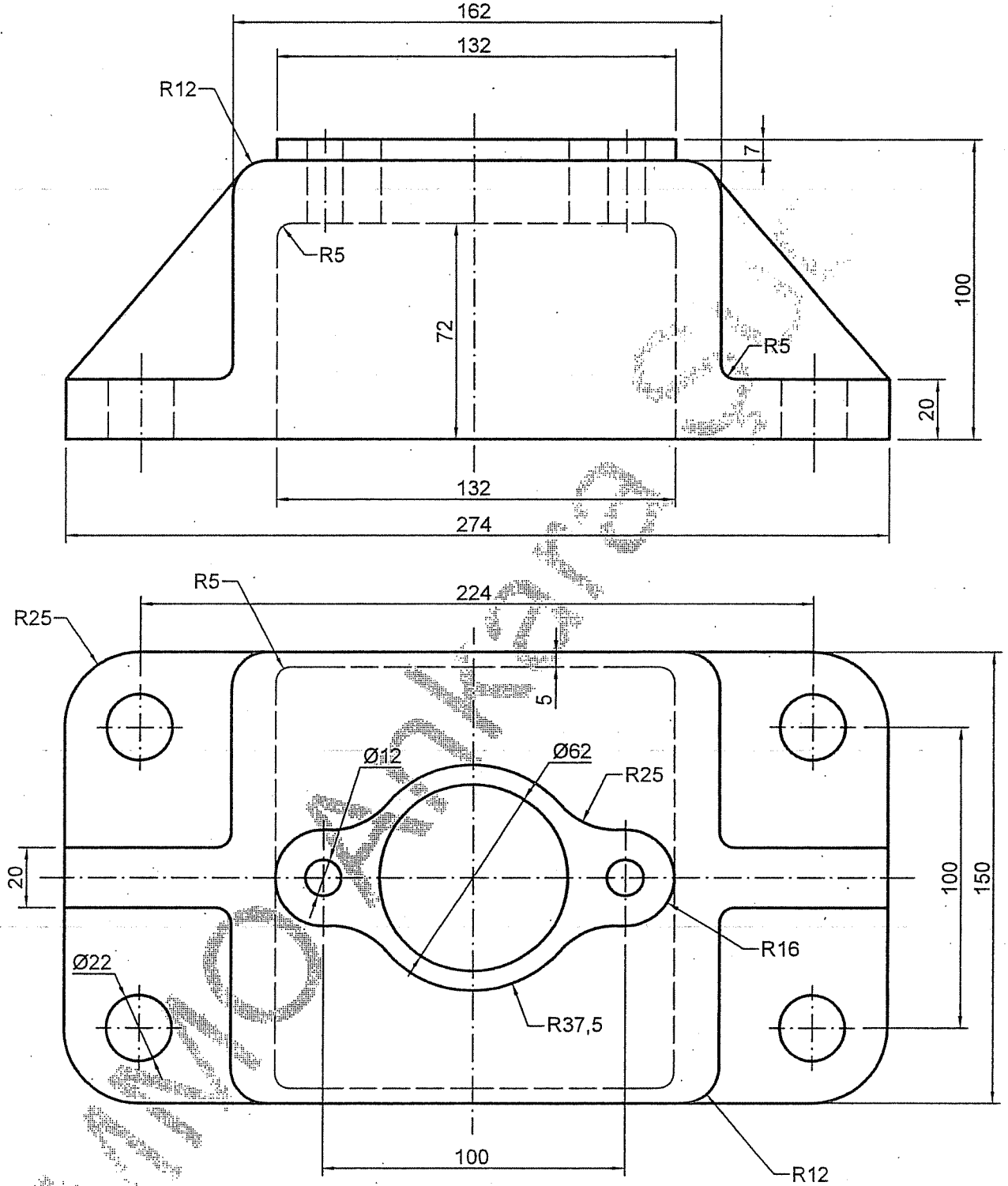


Hatırlatmalar: Kullanılan katmanlar, derste tanımlanan standartta olacaktır.

Autodesk®



Resim No: 2B-220



NOT: Belirtilmeyen yuvarlatmalar R5



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-225

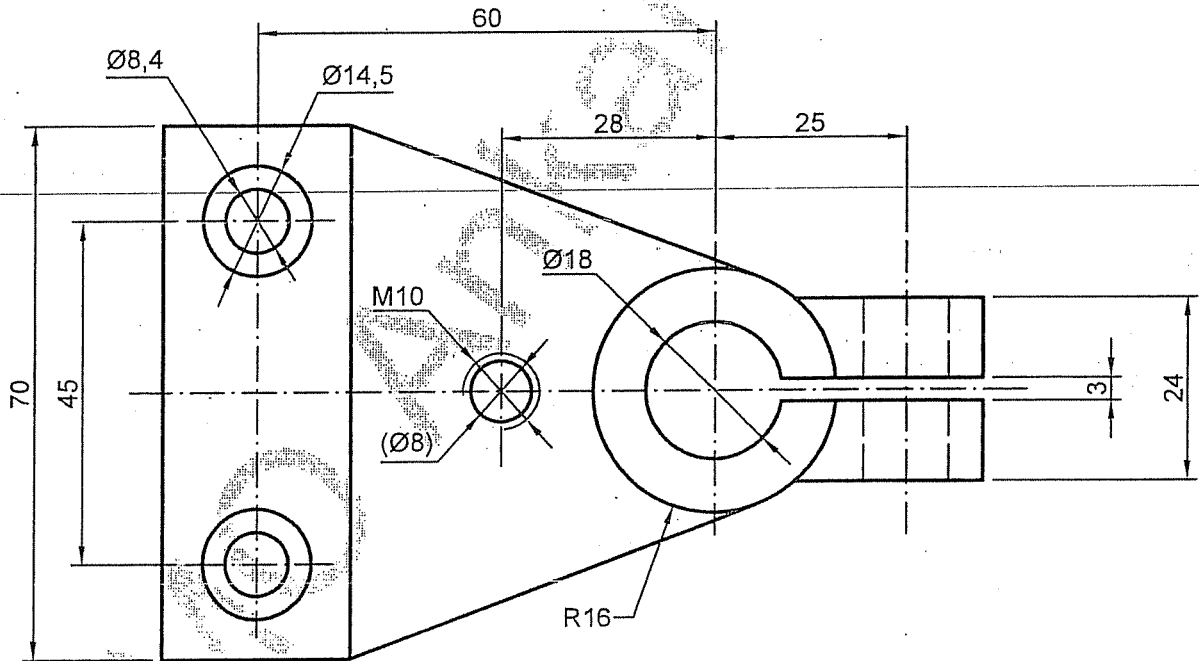
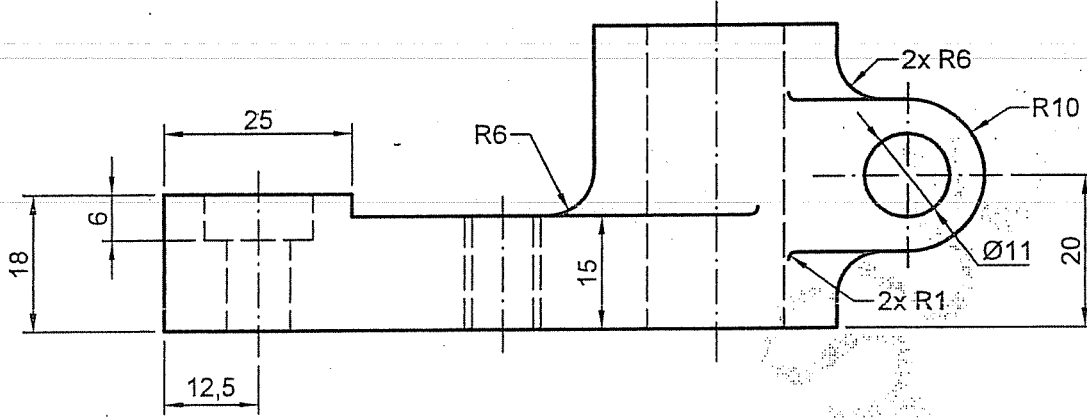
Konu:

Genel Çizim Uygulaması

Hatırlatmalar:

ÖLÇEK 1: 1
METRİK

Autodesk



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:

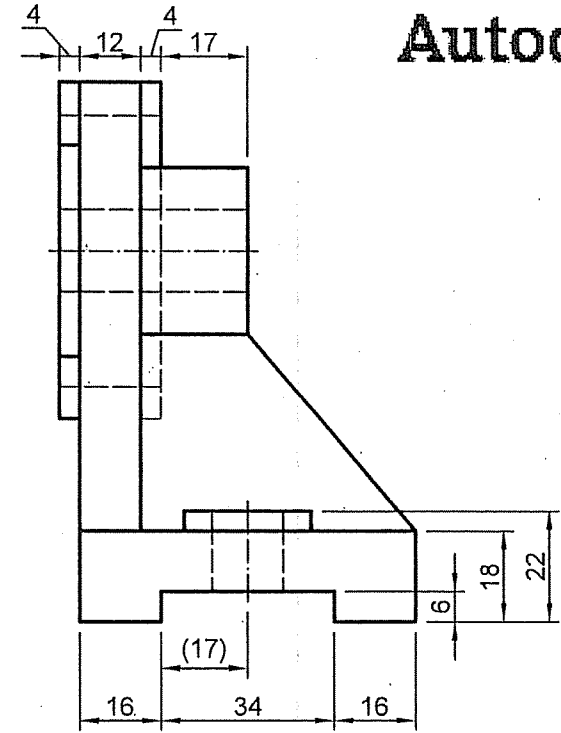
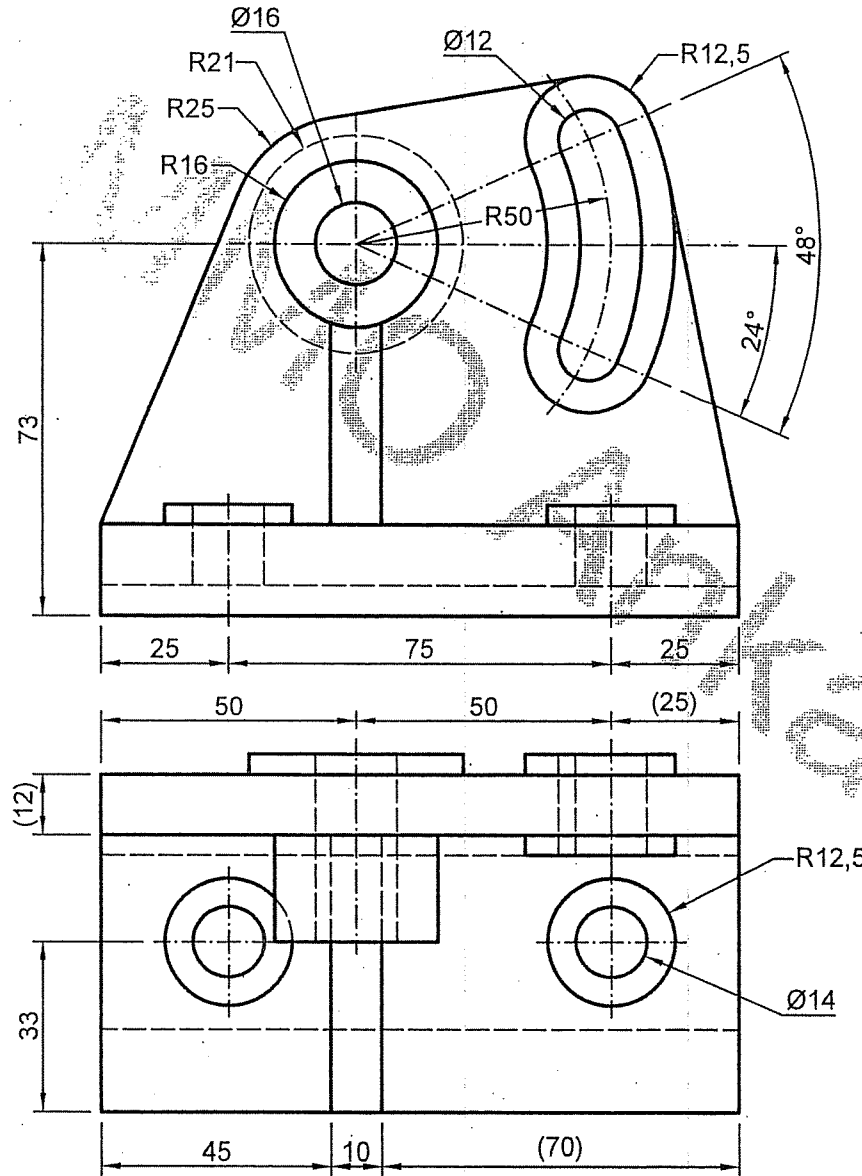
2B-230

Konu:

Genel Çizim Uygulaması

Hatırlatmalar:

ÖLÇEK 2 : 3
METRİK



Autodesk



Osman Günhan Bayat
Abdurrahman Kurşun

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-235

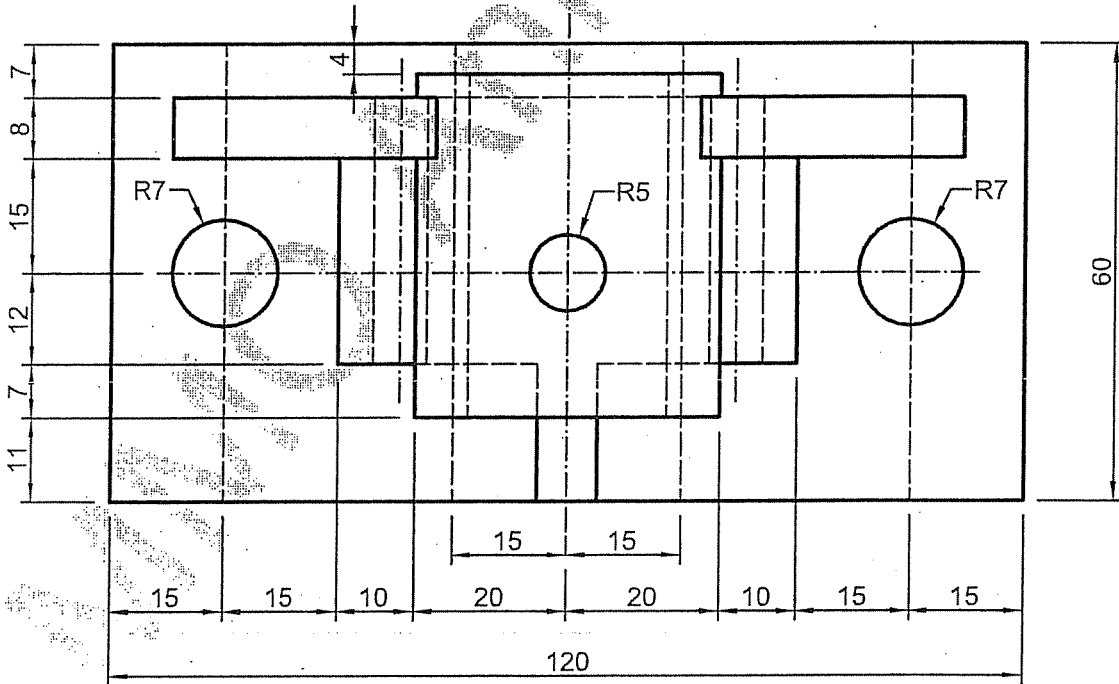
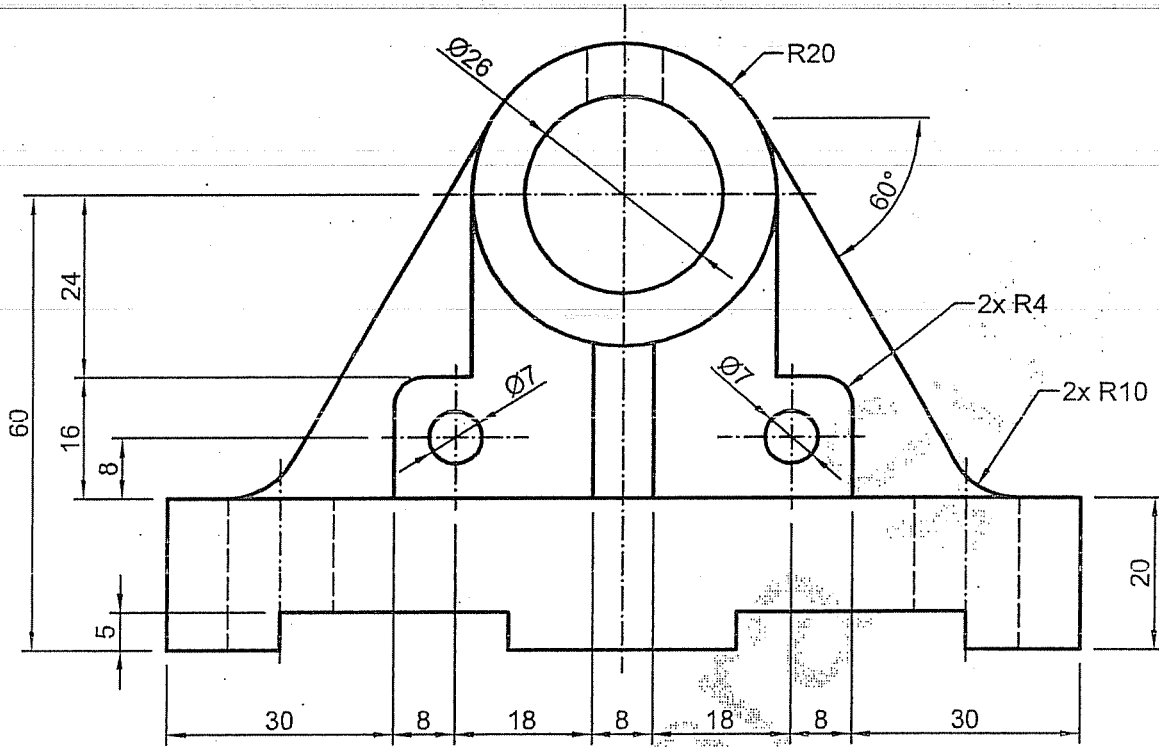
Konu:

Katman Kullanımı

Hatırlatmalar: Tüm nesneler katmana bağlı
olacak şekilde çalışınız.

ÖLÇEK 1:1
METRİK

Autodesk



Osman Günhan Bayat
Kerim Temel

Makina Mühendisleri Odası
Ankara Şube

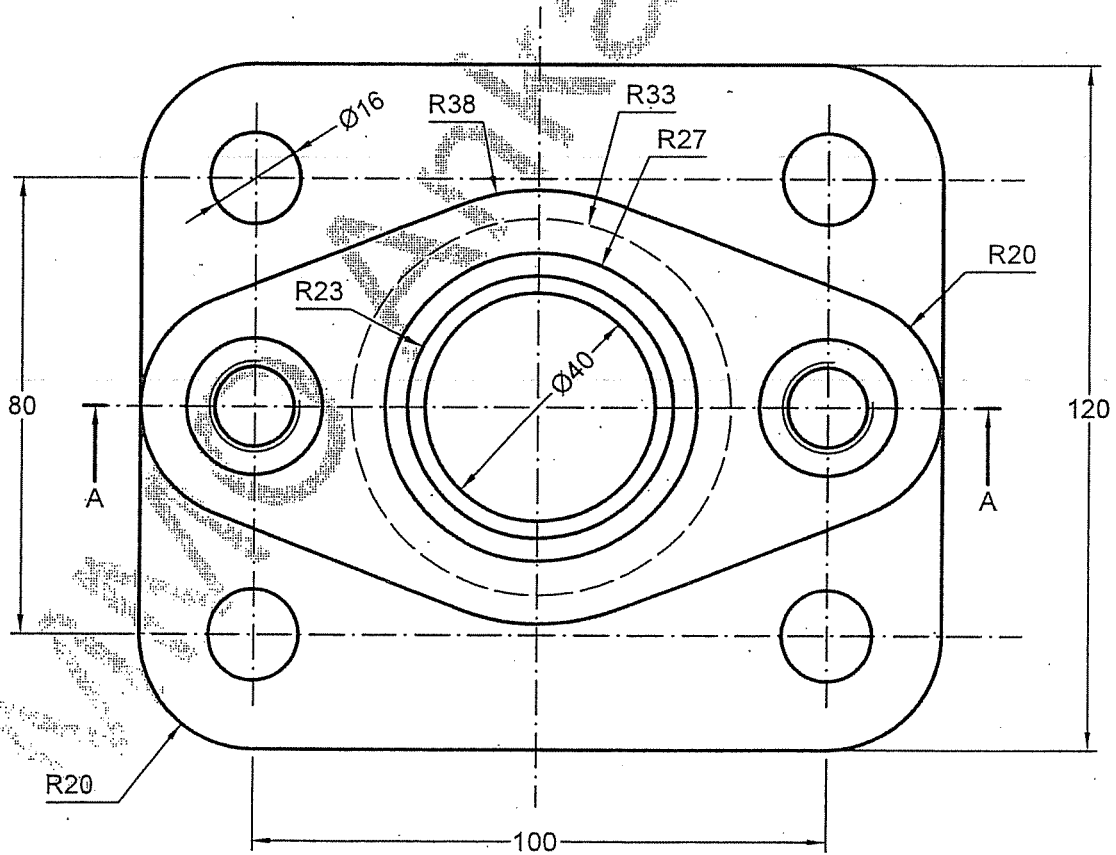
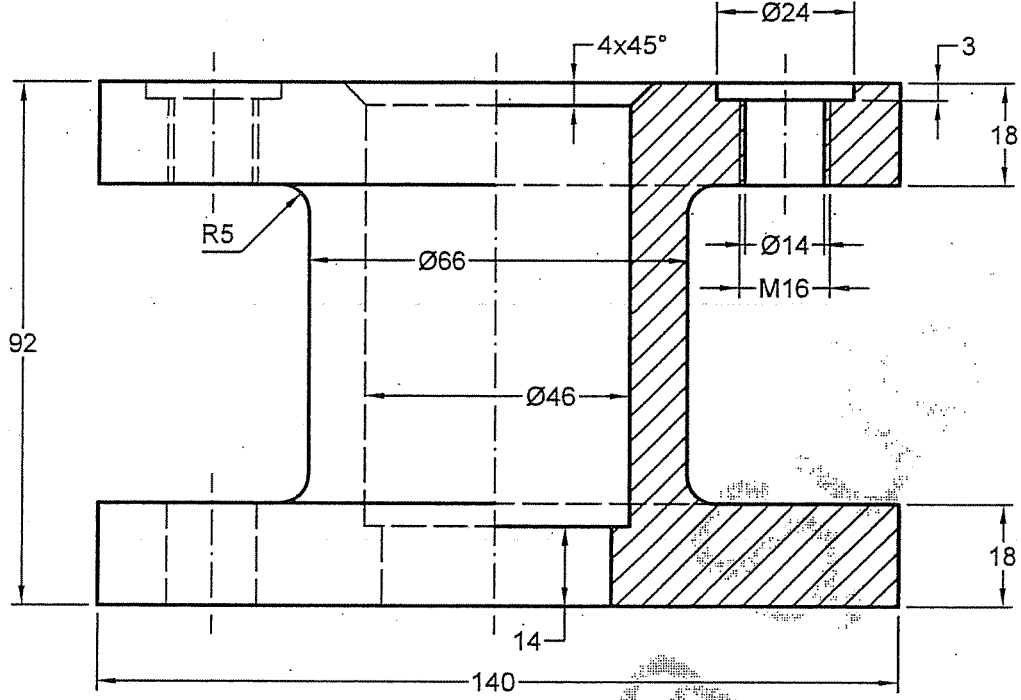
Resim No:
2B-237

Konu:
Katman ve Obje Özellikleri Uygulaması

Hatırlatmalar:

ÖLÇEK 3:4
METRİK

Autodesk



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:

2B-240

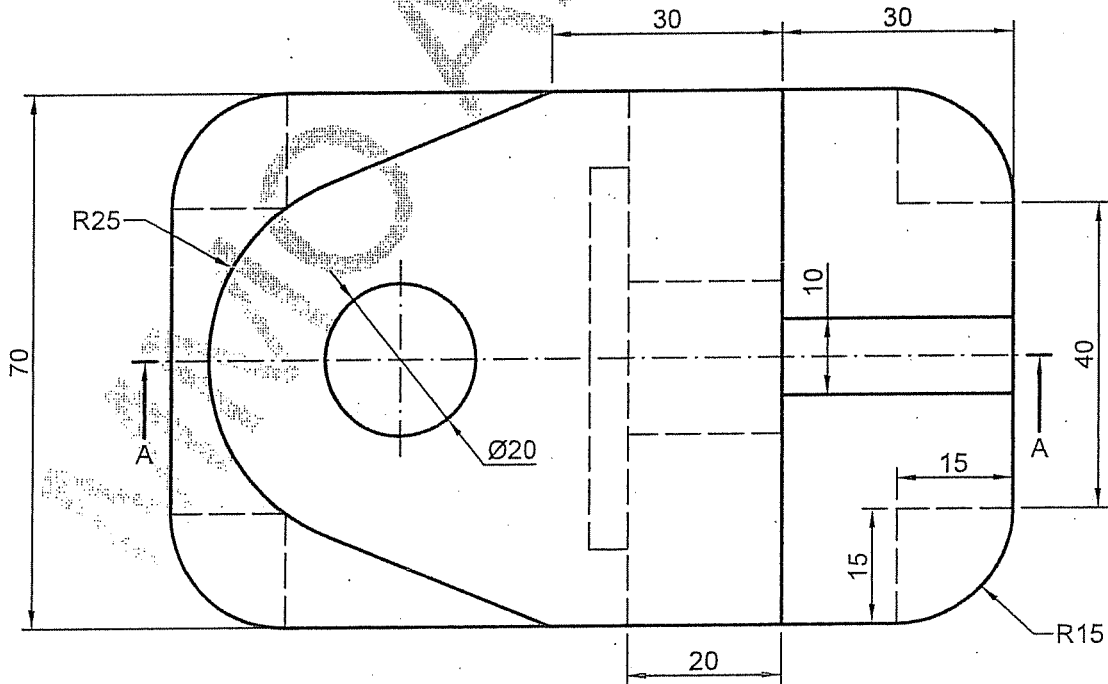
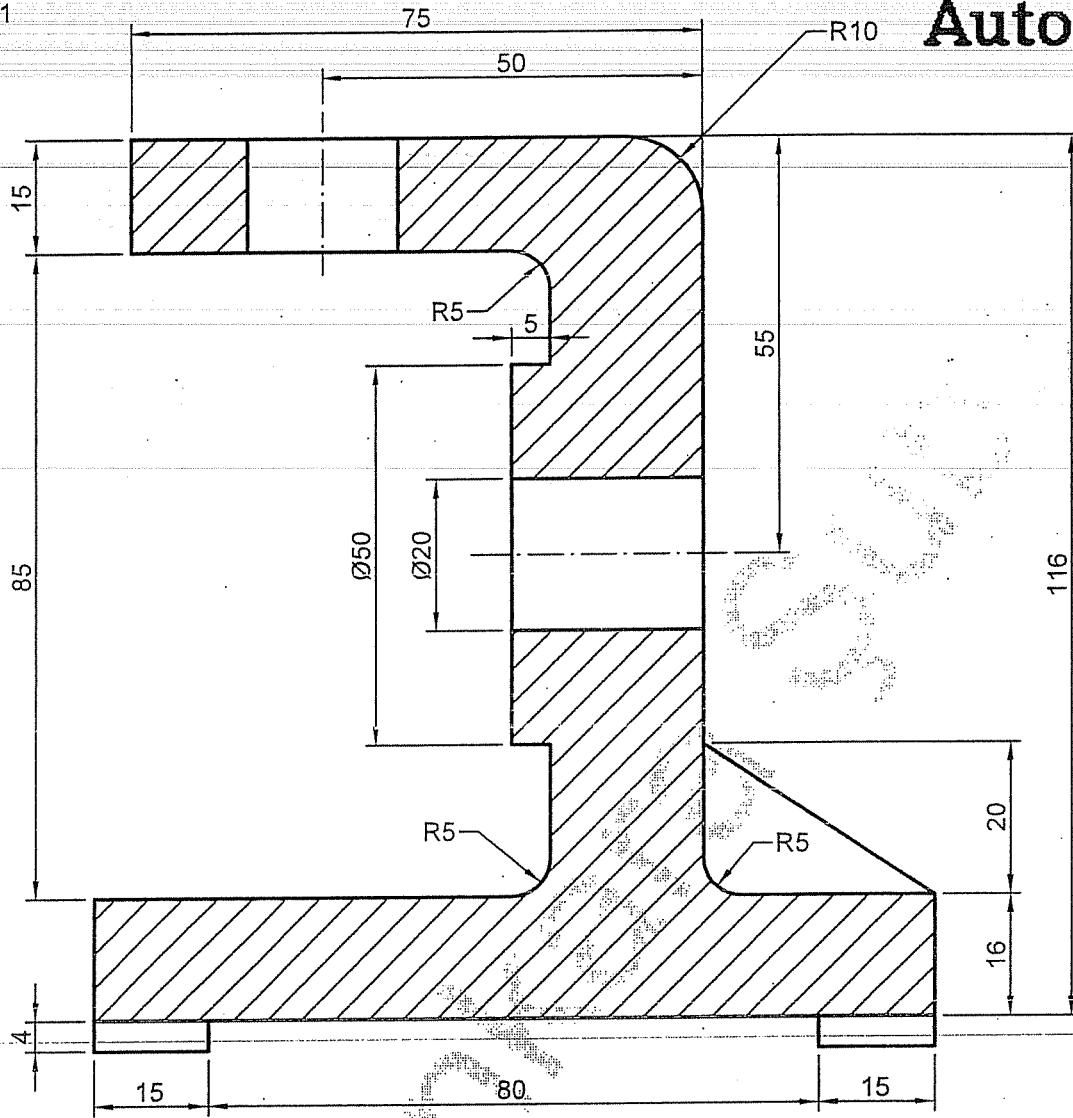
Konu:

Tarama Komutu Uygulaması

Hatırlatmalar:

ÖLÇEK 1 : 1
METRİK

Autodesk



Osman Günhan Bayat
Zafer Emre Ergün

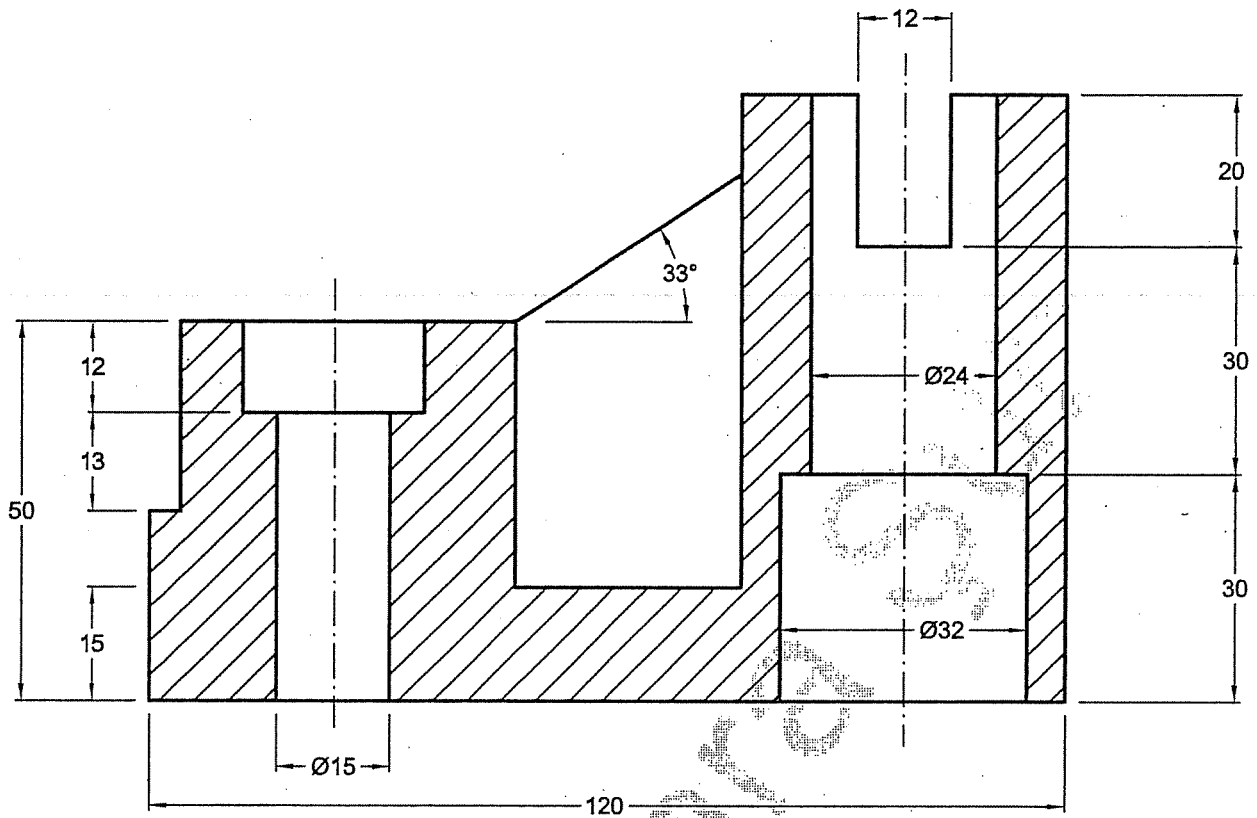
Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-245

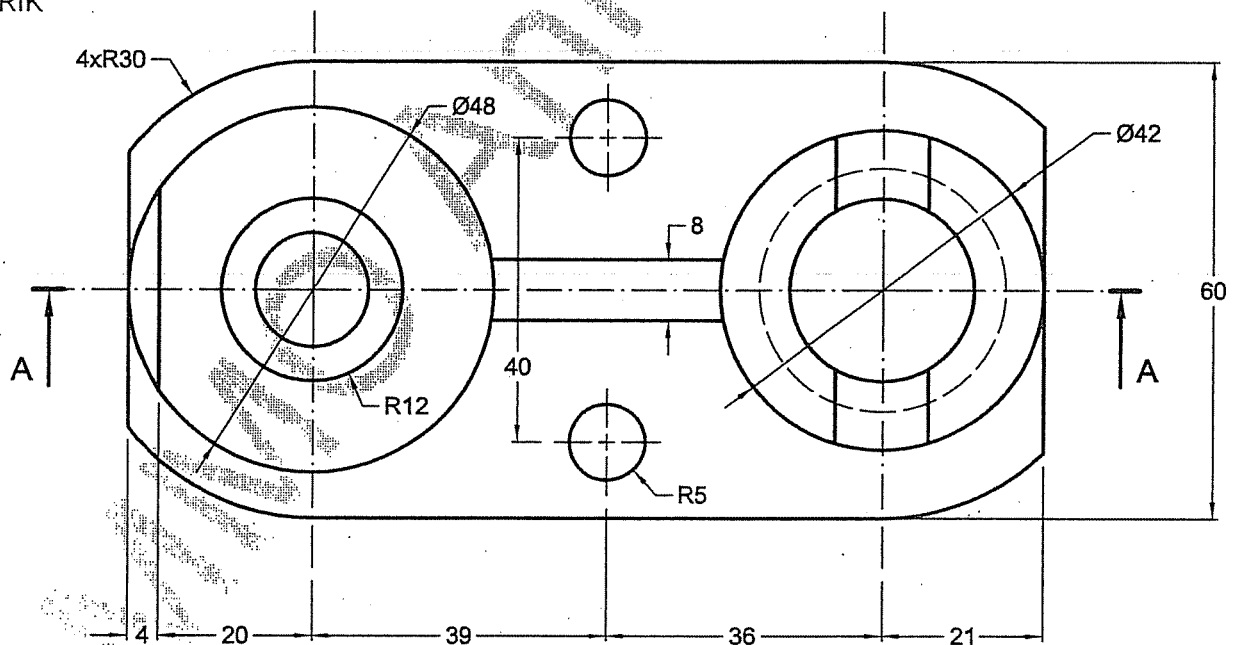
Konu:
Tarama Komutu Uygulaması

Hatırlatmalar:

Autodesk®



ÖLÇEK 1 : 1
METRİK



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:

2B-250

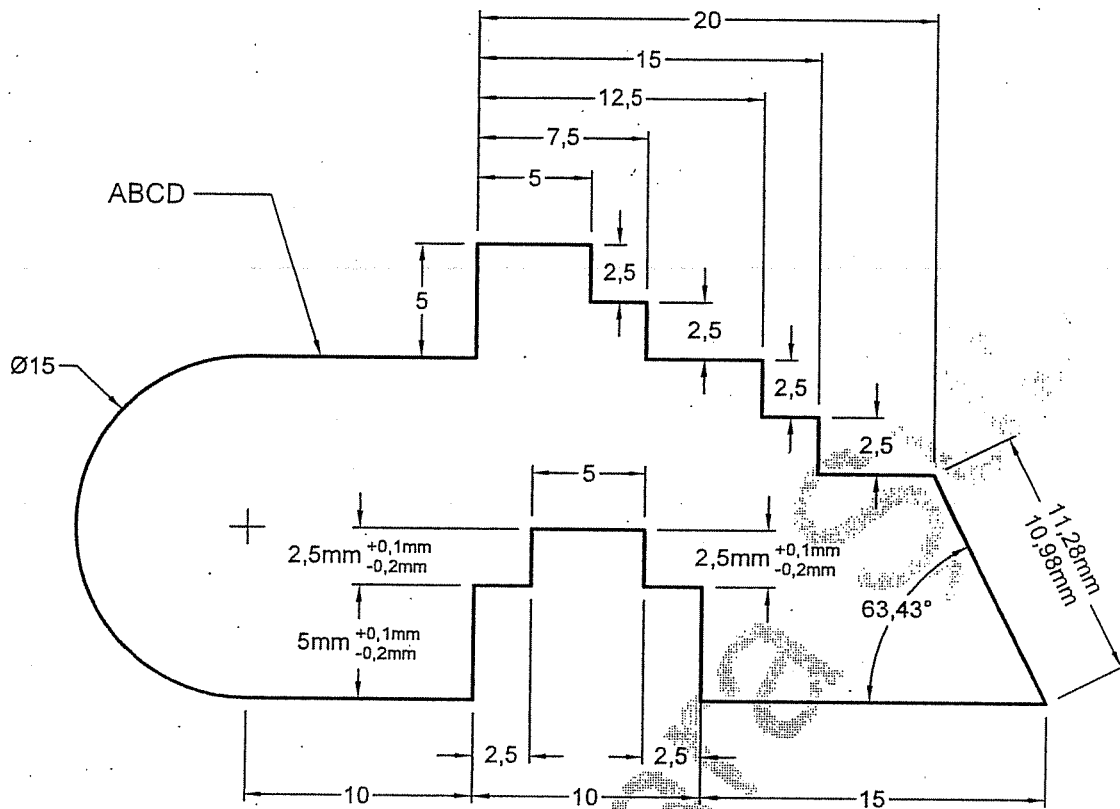
Konu:

Tarama Komutu

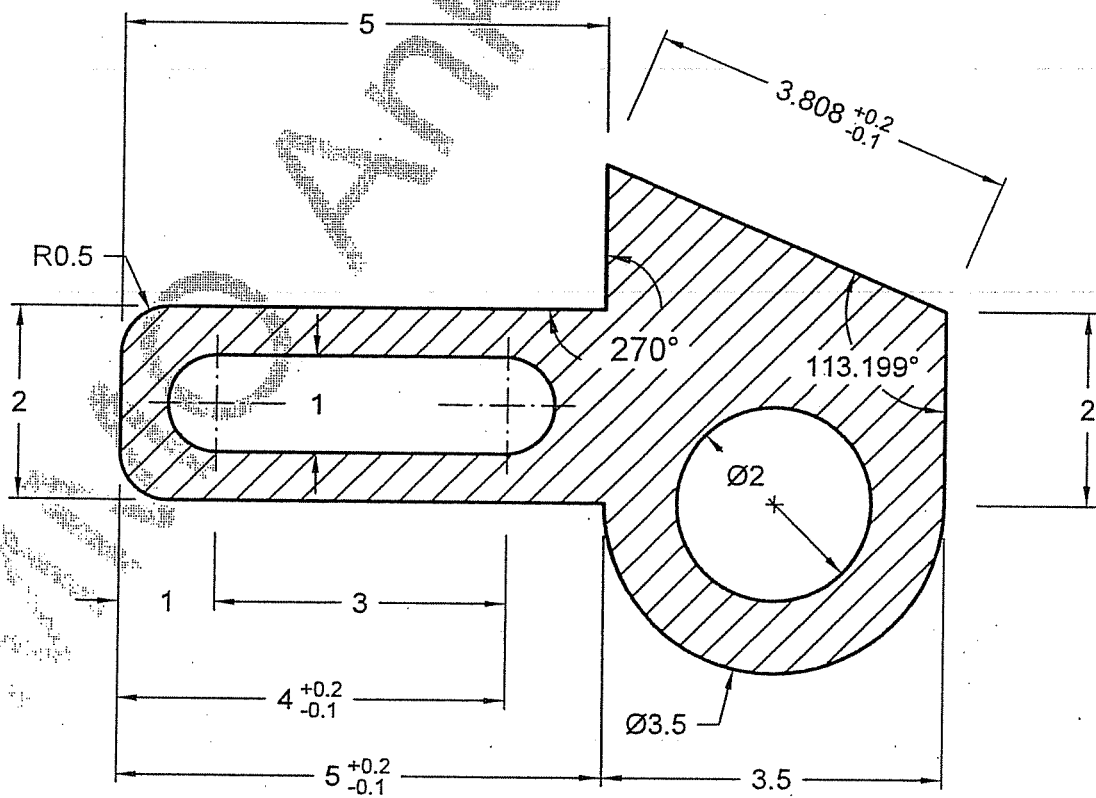
Hatırlatmalar:

Katman standartlarına uyulacaktır.

Autodesk®



ÖLÇEK 1 : 2
İNÇ



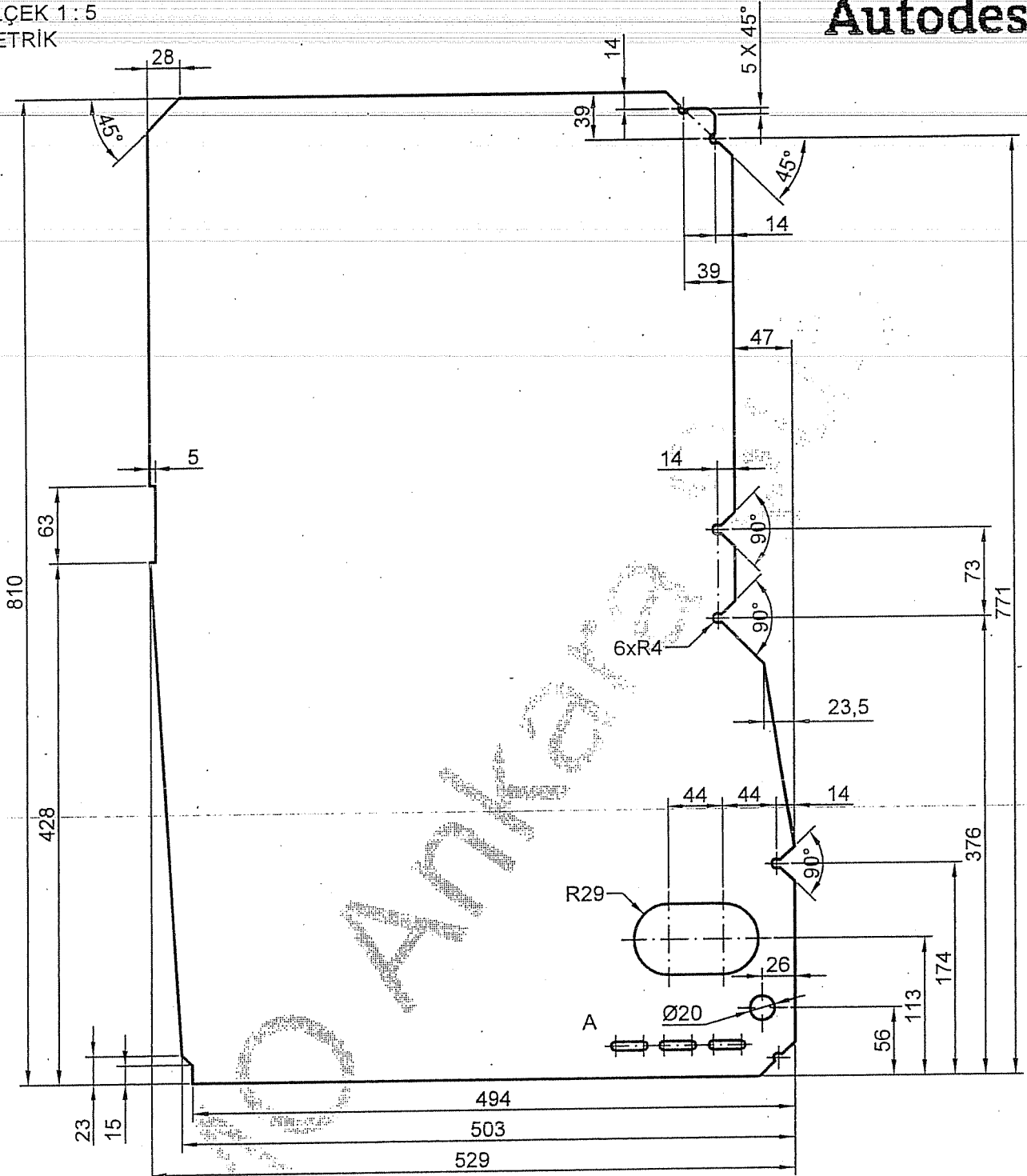
Resim No: 2B-260

Hatırlatmalar:

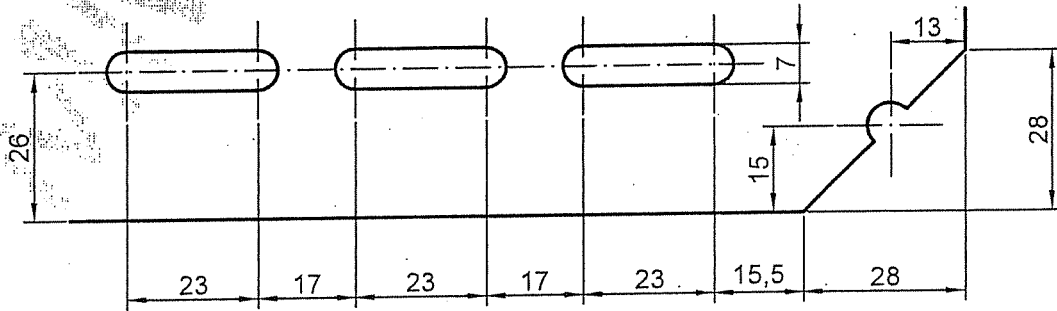
Ölçülendirme stiline kullanılması

ÖLÇEK 1 : 5
METRİK

Autodesk



DETAY A
3 : 4



Osman Günhan Bayat
Serkan Çiçek

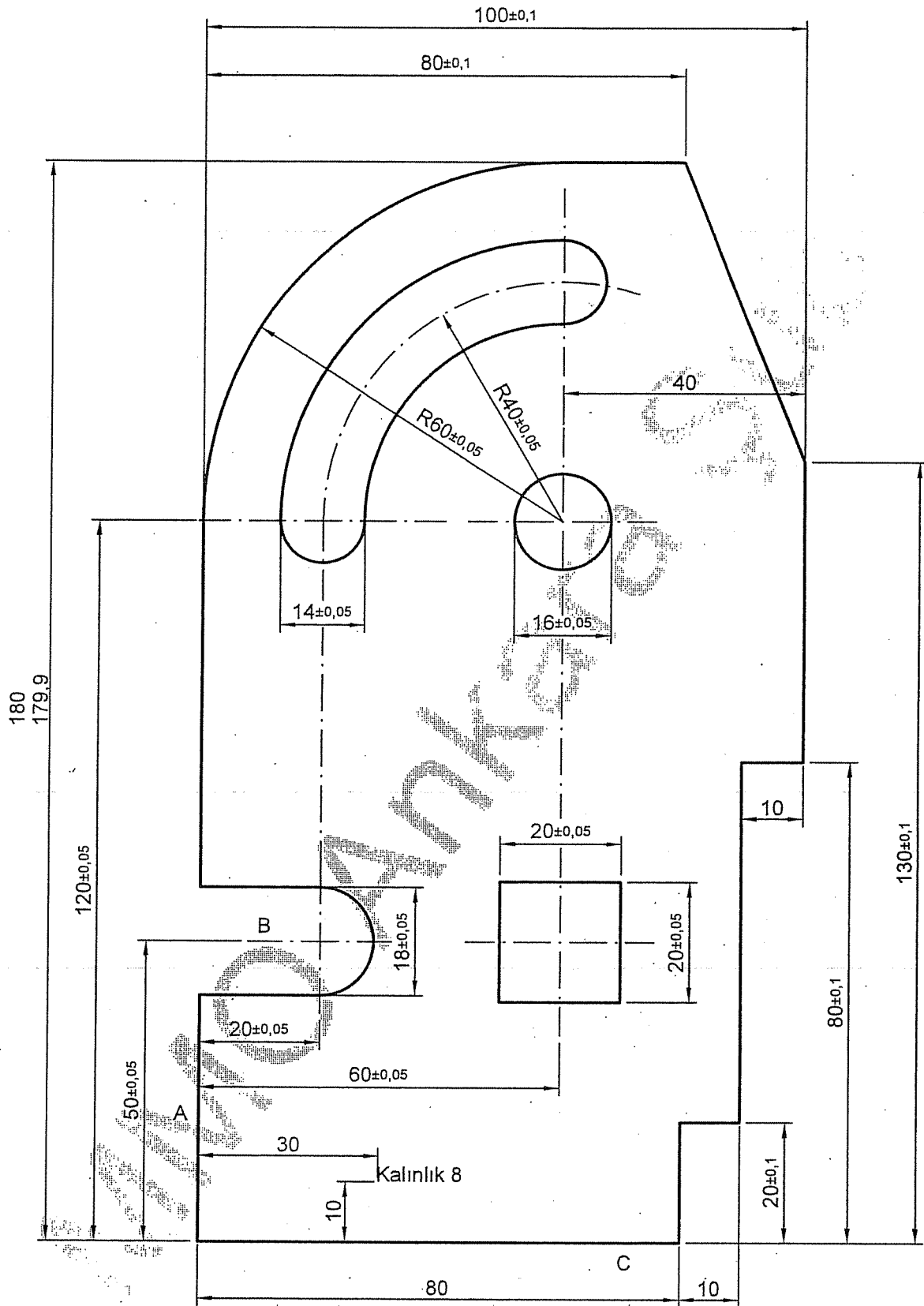
Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-265

Konu:

Çizim ve Ölçülendirme Uygulaması

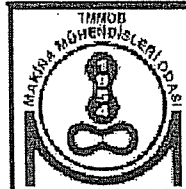
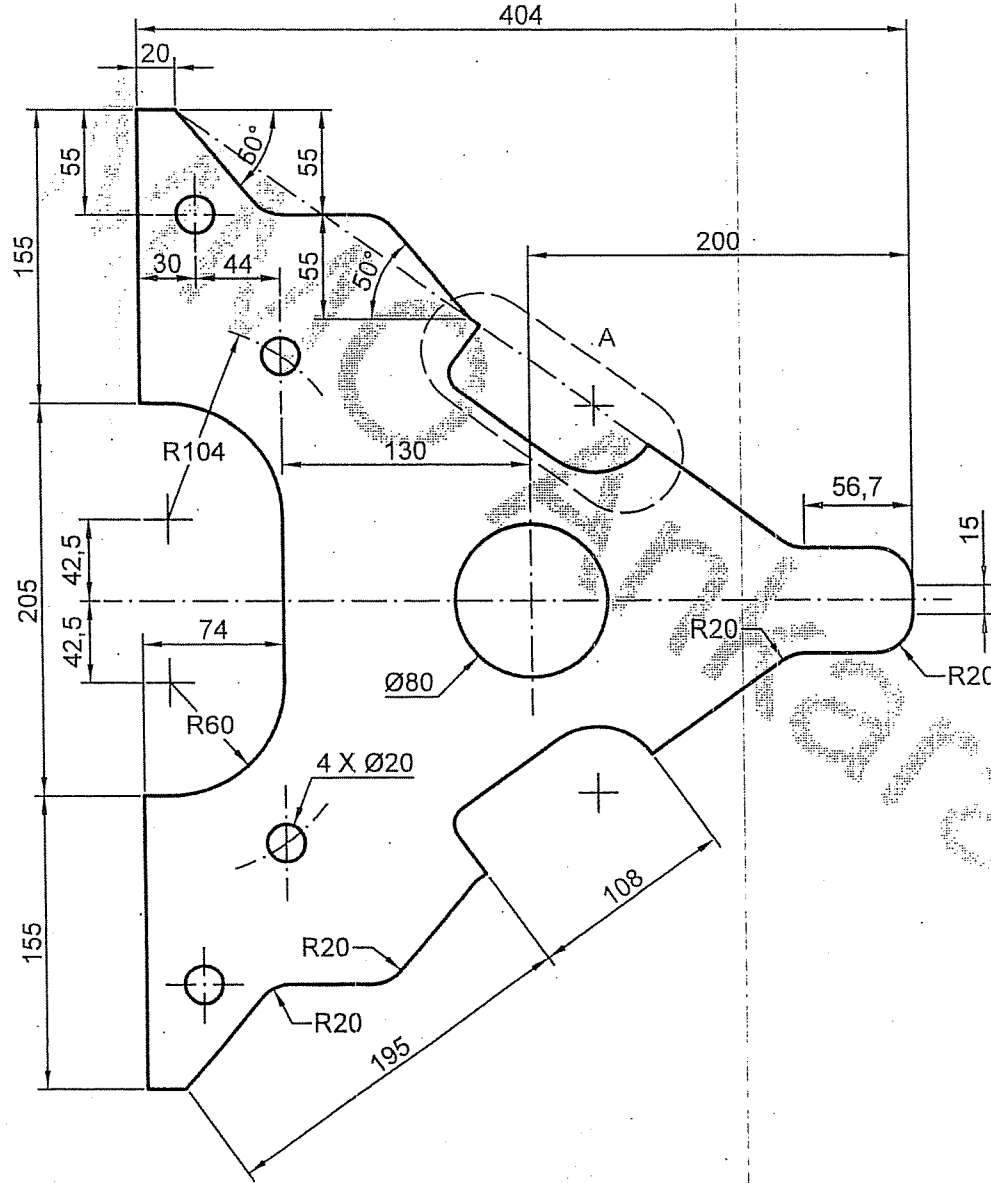
Hatırlatmalar:



Ölçülendirme Uygulaması

ÖLÇEK 1:4
METRİK

Autodesk



Osman Günhan Bayat
Serkan Çiçek

Makina Mühendisleri Odası
Ankara Şube

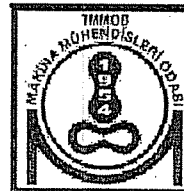
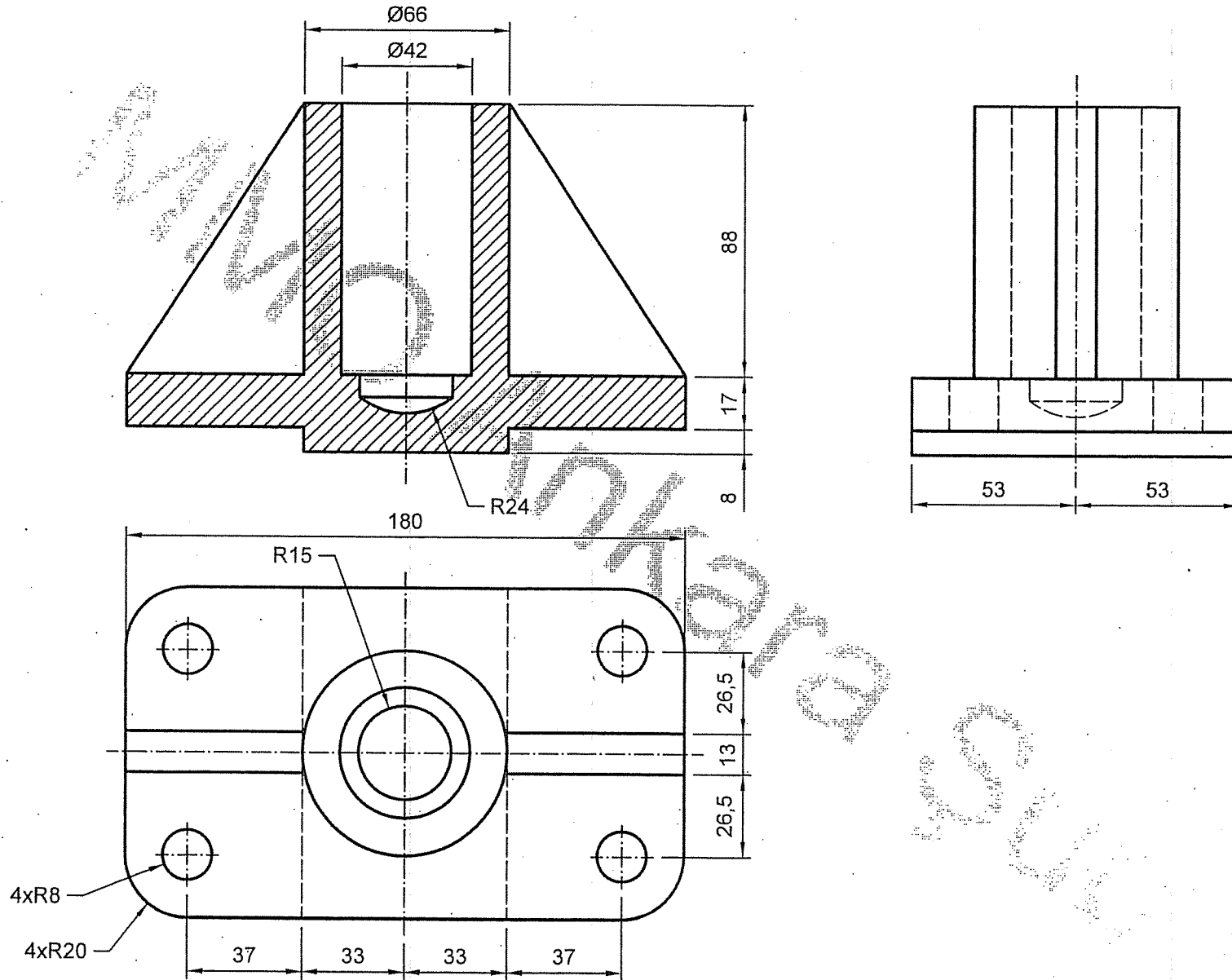
Resim No:
2B-275

Konu:
Çizim ve Ölçülendirme Uygulaması

Hatırlatmalar:

ÖLÇEK 1:2
METRİK

Autodesk



Osman Günhan Bayat
Abdurrahman Kurşun

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-285

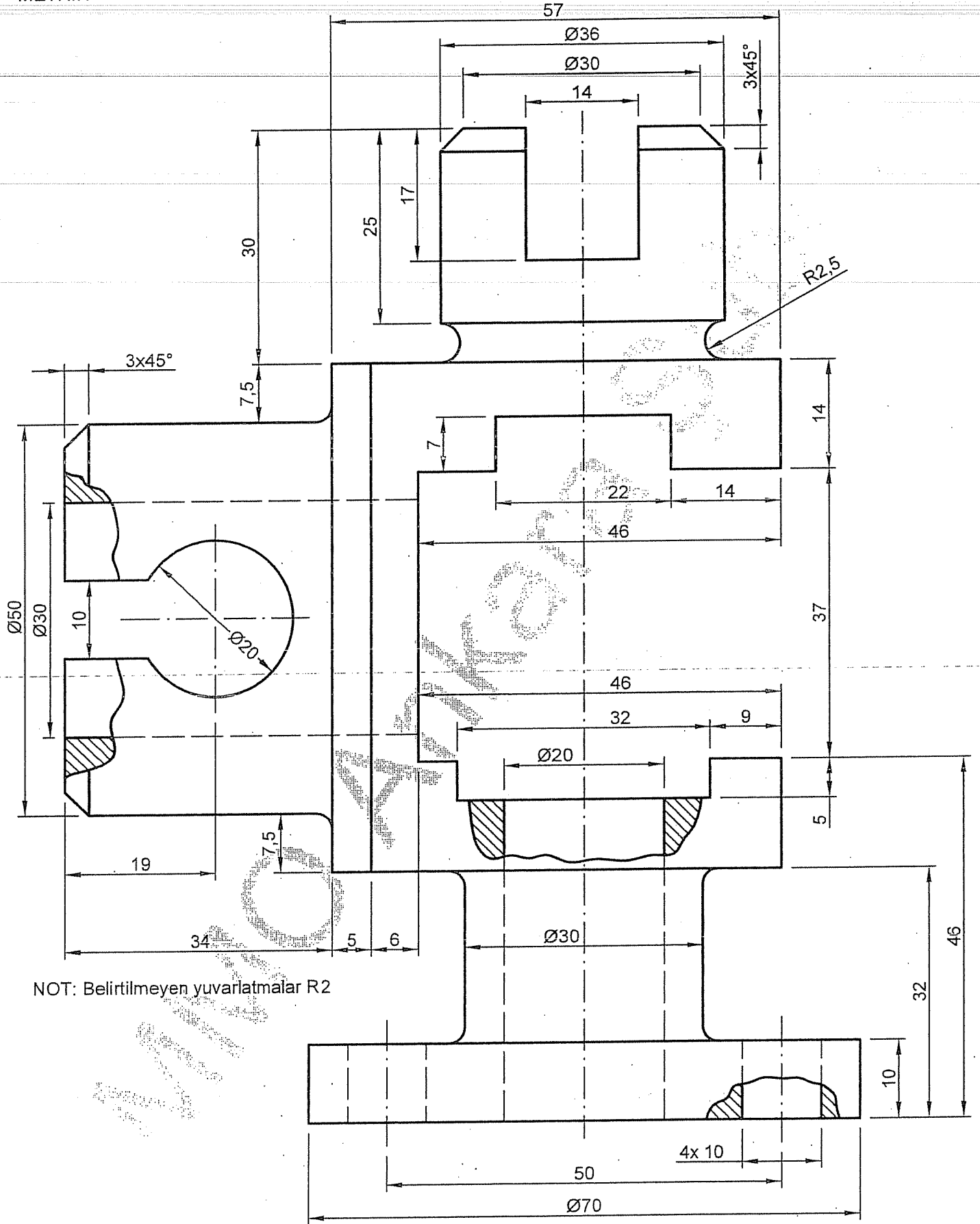
Konu:

İki Boyutlu Çizim Uygulaması

Hatırlatmalar:

ÖLÇEK 3:2
METRİK

Autodesk



NOT: Belirtilmeyen yuvarlatmalar R2



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

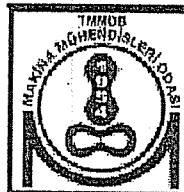
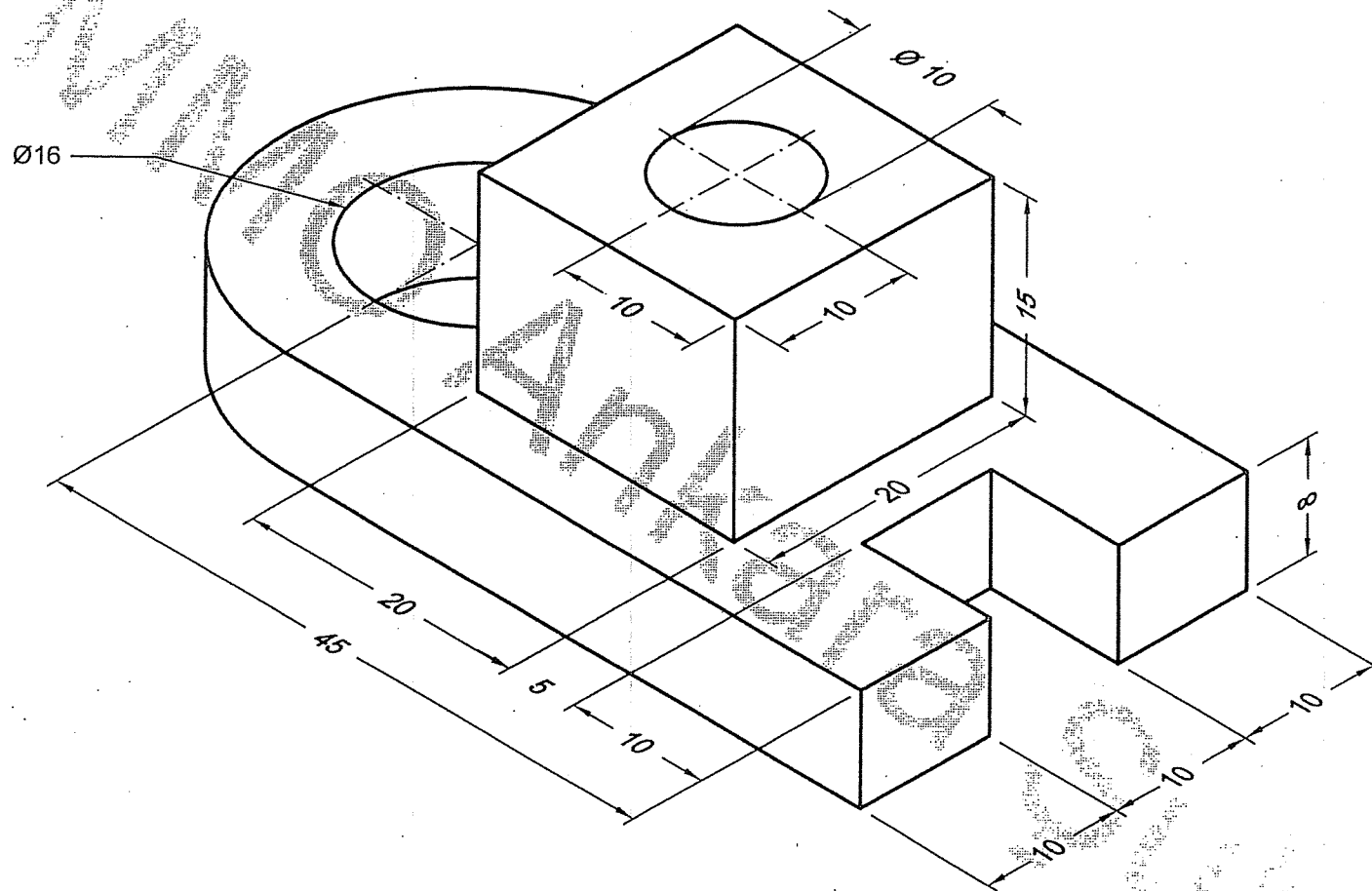
Resim No:
2B-290

Konu:

Genel Çizim Uygulaması

Hatırlatmalar:

Autodesk®

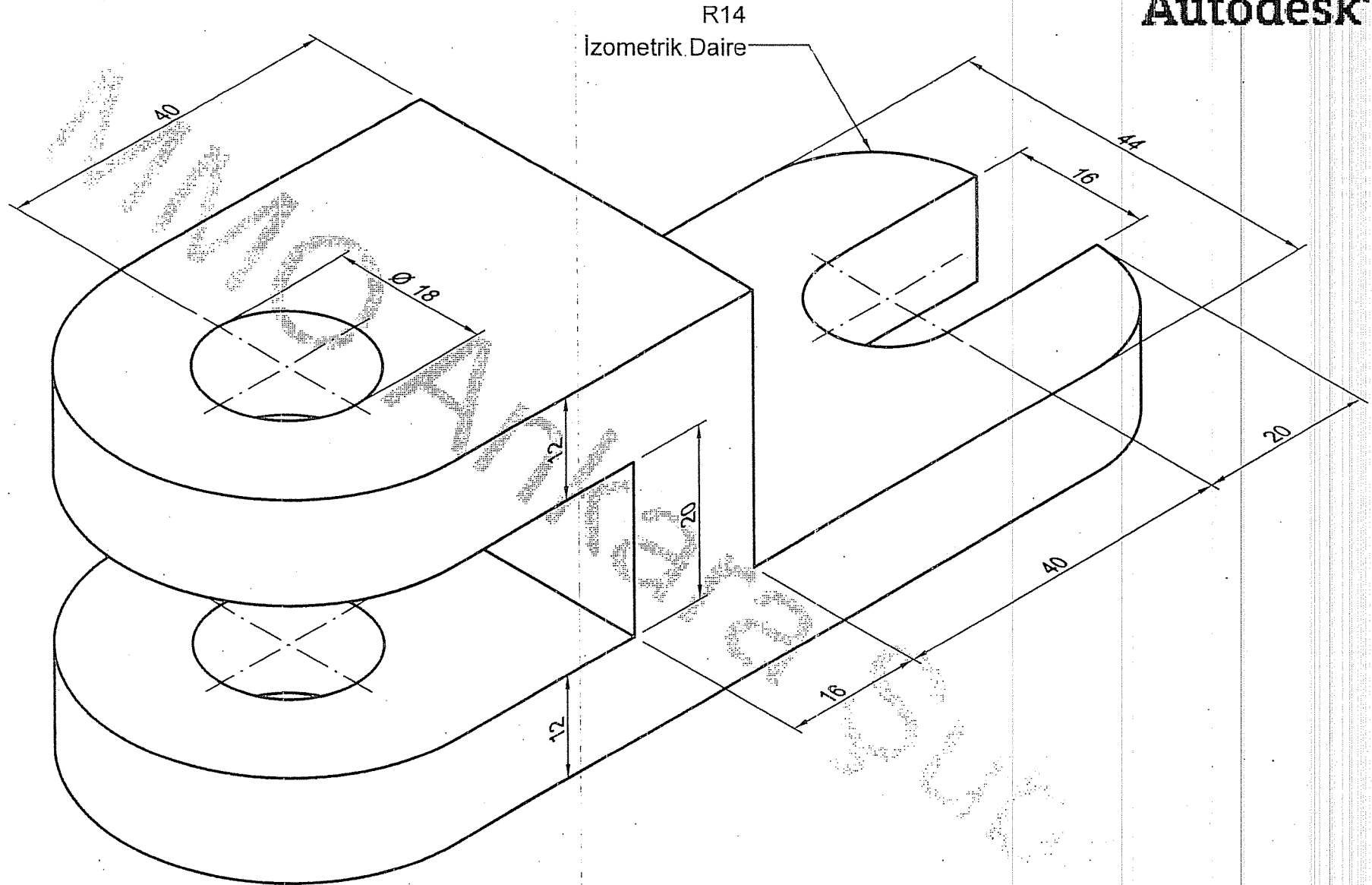


Resim No: 2B-295

Hatırlatmalar: Elips komutunun İzometrik Çember (isocircle) opsiyonu.

ÖLÇEK 3:2
METRİK

Autodesk



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

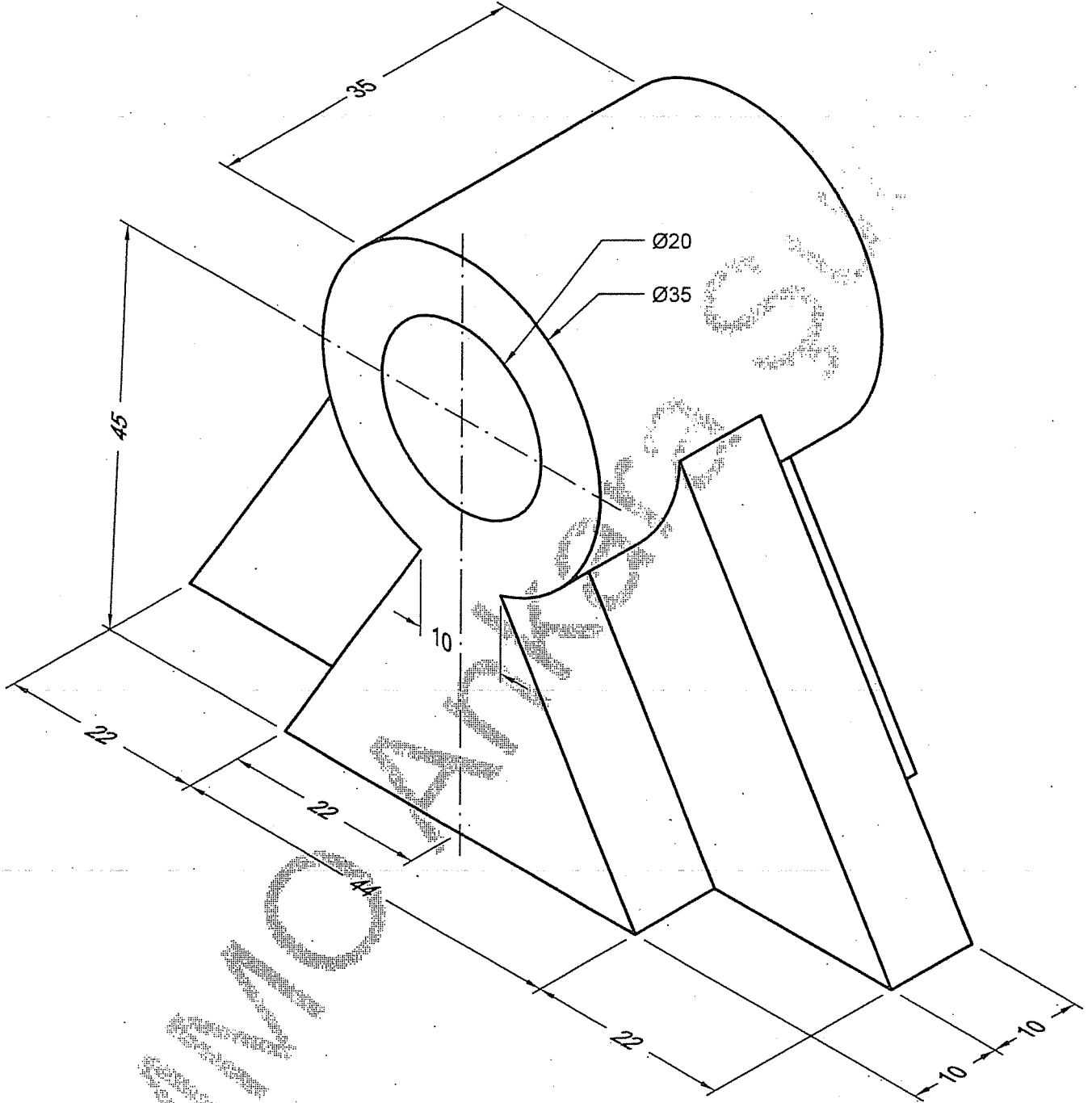
Resim No:
2B-300

Konu:

İzometrik Çizim Uygulaması

Hatırlatmalar:

İzometrik Stil Ayarları



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-305

Konu:

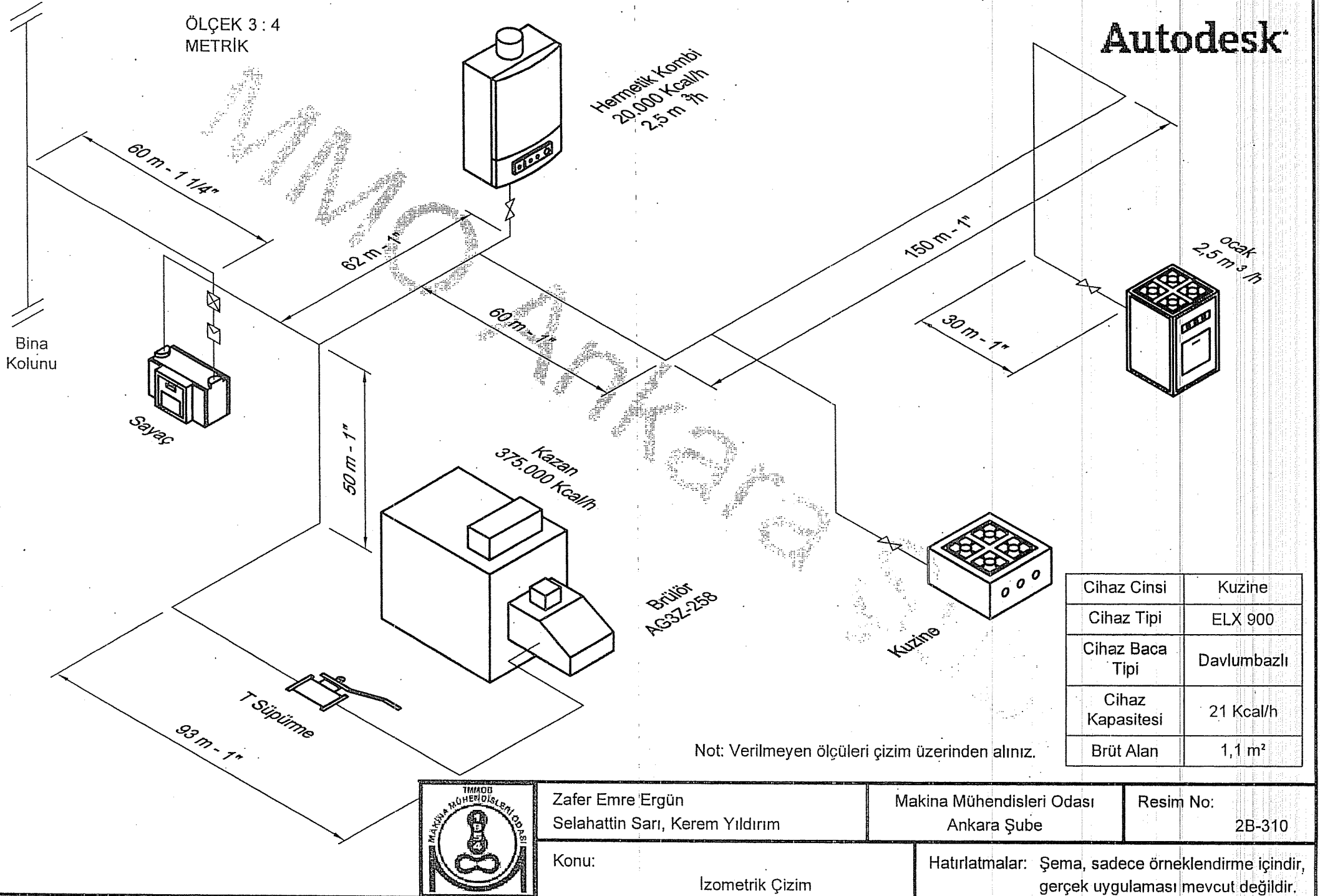
İzometrik Çizim

Hatırlatmalar:

İzometrik Ölçülendirme Stilleri

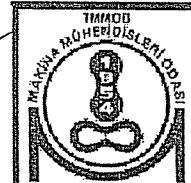
ÖLÇEK 3 : 4
METRİK

Autodesk



Not: Verilmeyen ölçüleri çizim üzerinden alınız.

Cihaz Cinsi	Kuzine
Cihaz Tipi	ELX 900
Cihaz Baca Tipi	Davlumbazlı
Cihaz Kapasitesi	21 Kcal/h
Brüt Alan	1,1 m ²



Zafer Emre Ergün
Selahattin Sarı, Kerem Yıldırım

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-310

Konu:

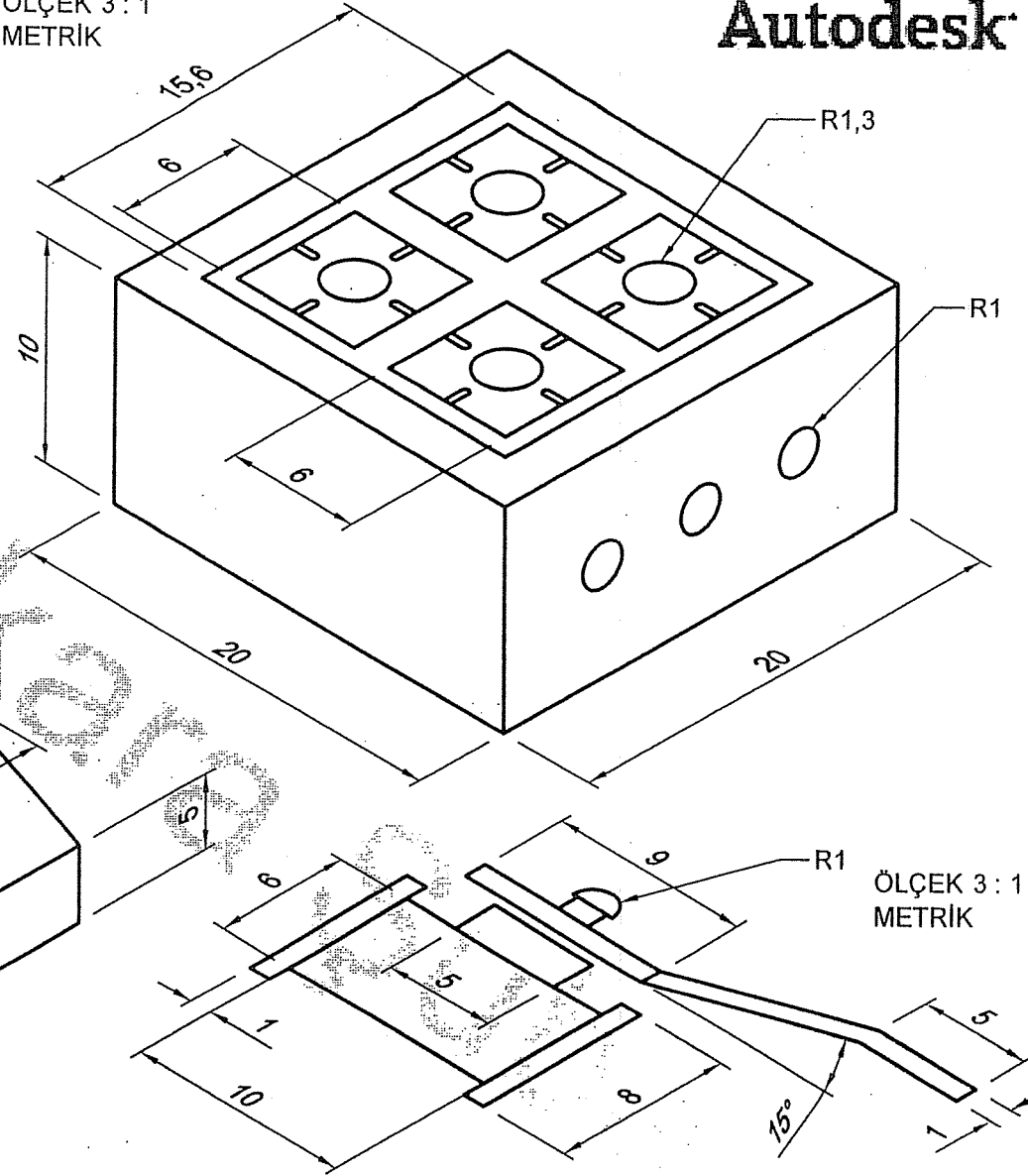
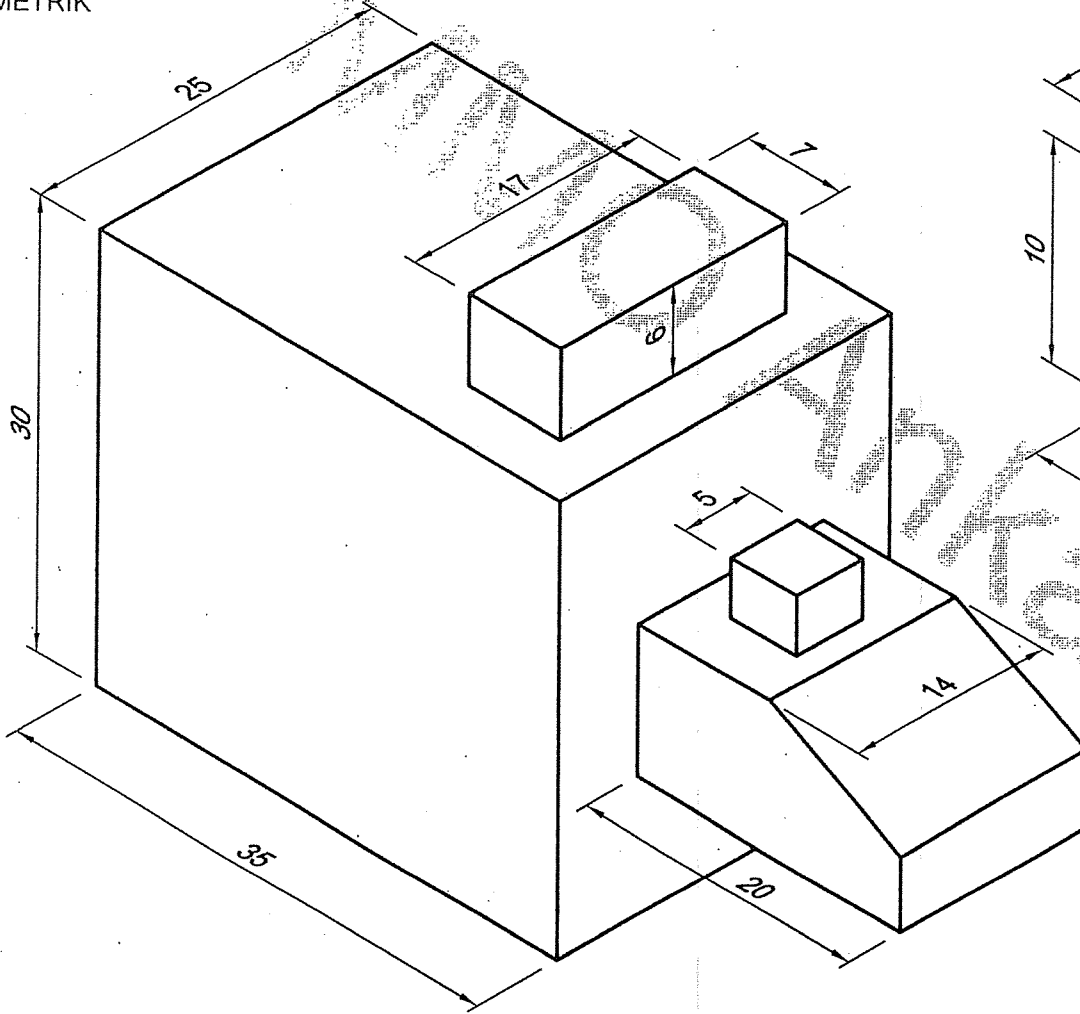
İzometrik Çizim

Hatırlatmalar: Şema, sadece örneklendirme içindir, gerçek uygulaması mevcut değildir.

ÖLÇEK 2 : 1
METRİK

ÖLÇEK 3 : 1
METRİK

Autodesk



Zafer Emre Ergün
Selahattin Sarı, Kerem Yıldırım

Makina Mühendisleri Odası
Ankara Şube

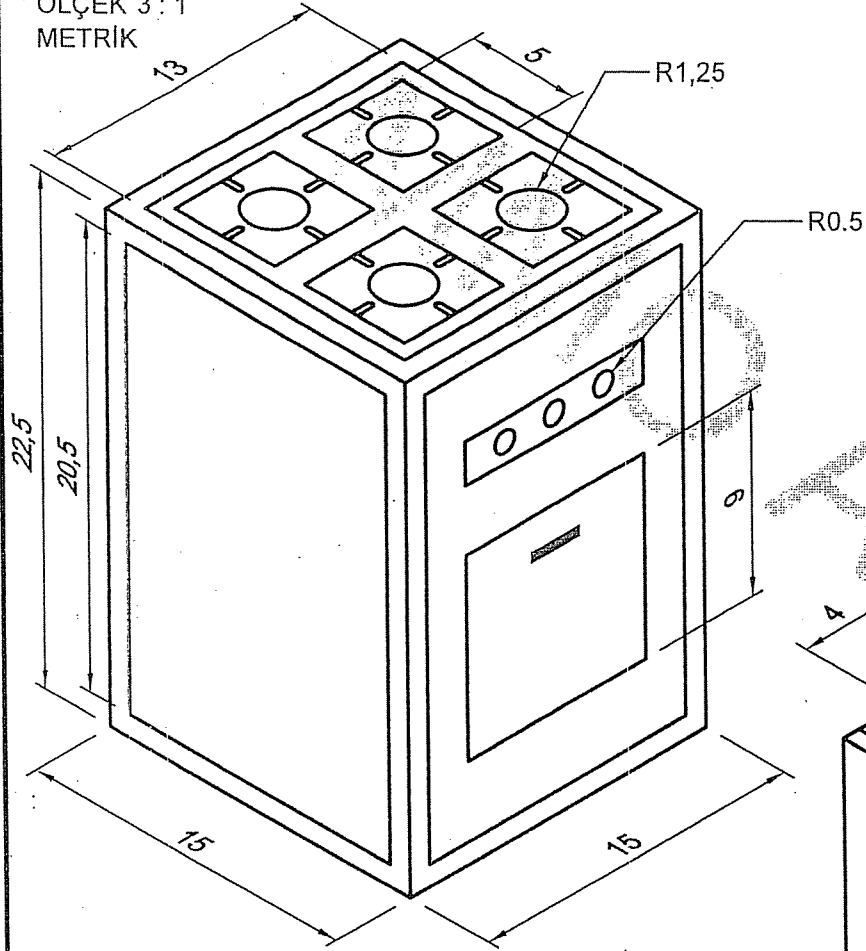
Resim No:
2B-310-A

Konu:

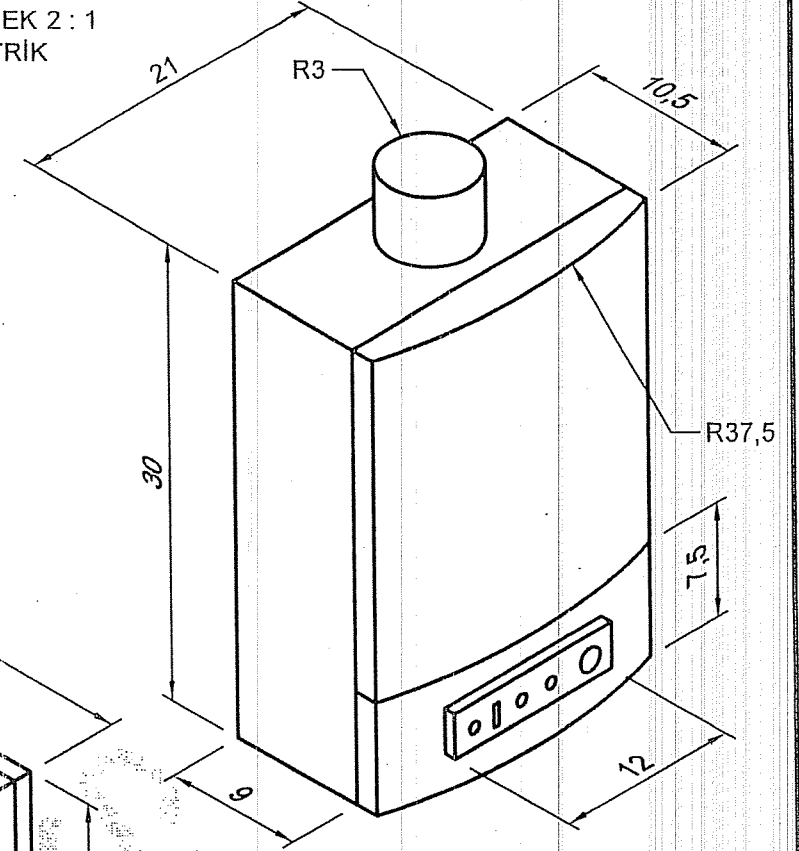
İzometrik Çizim

Hatırlatmalar:

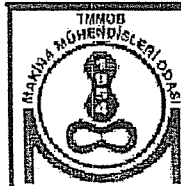
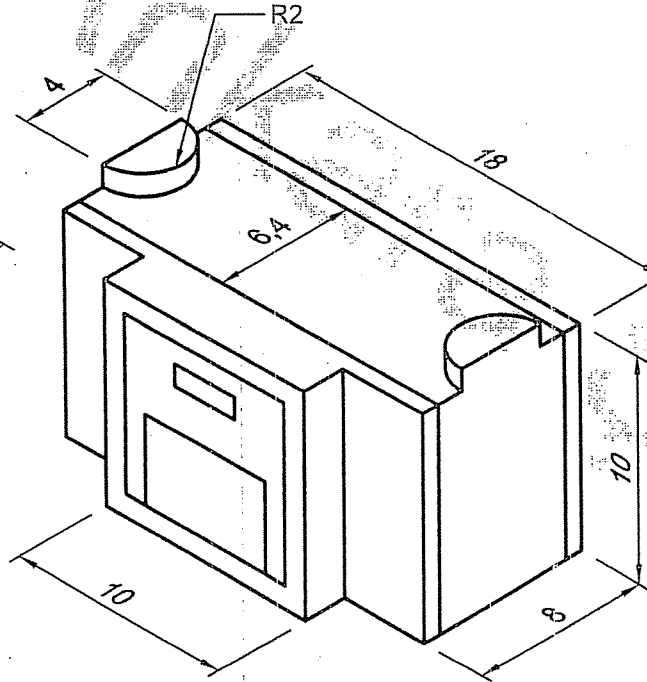
ÖLÇEK 3 : 1
METRİK



ÖLÇEK 2 : 1
METRİK



ÖLÇEK 3 : 1
METRİK



Zafer Emre Ergün
Selahattin Sarı, Kerem Yıldırım

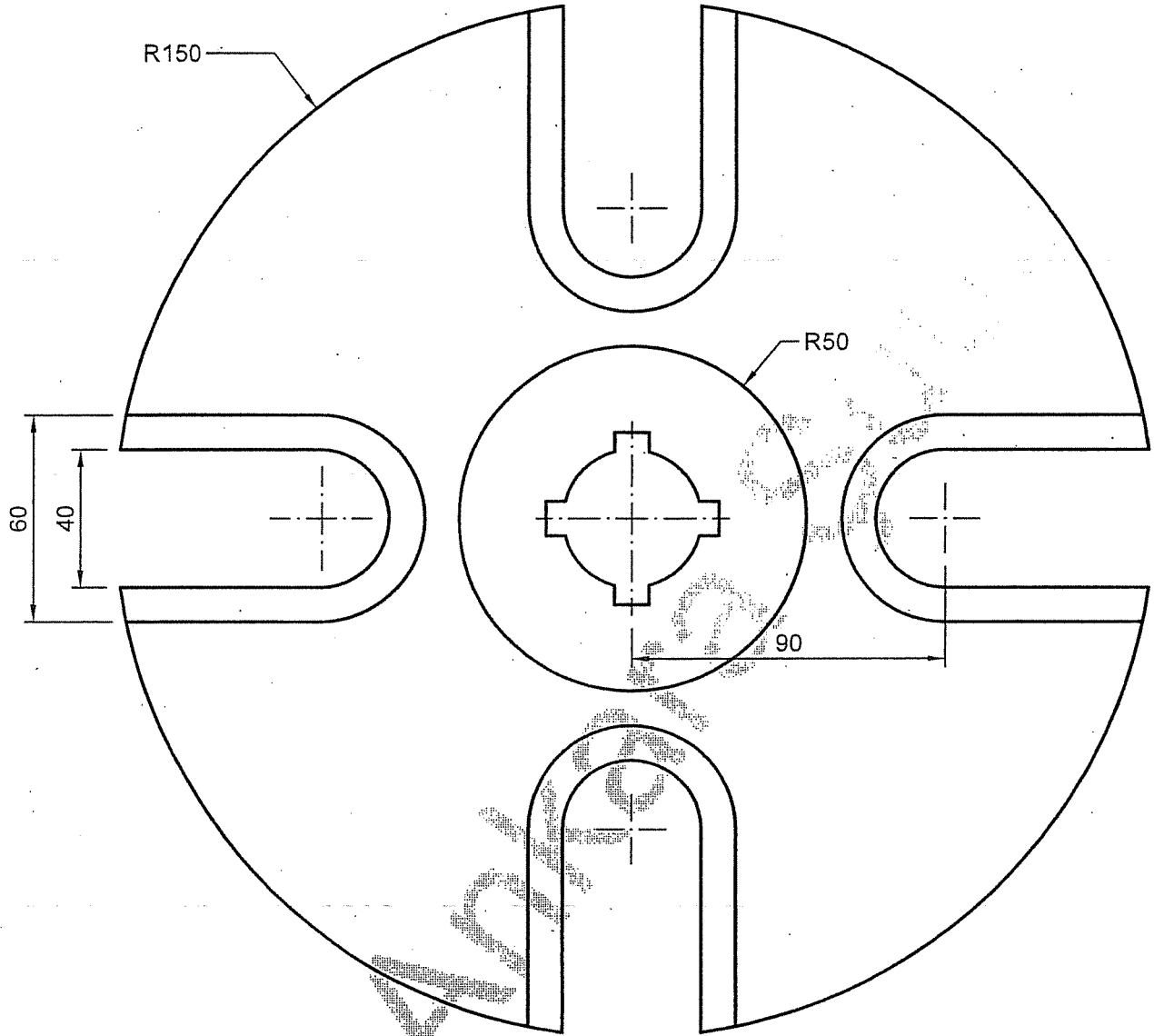
Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-310-B

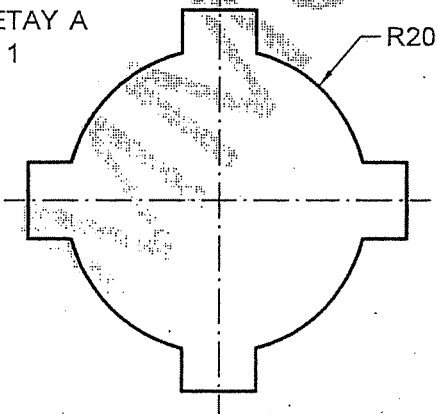
Konu:

İzometrik Çizim

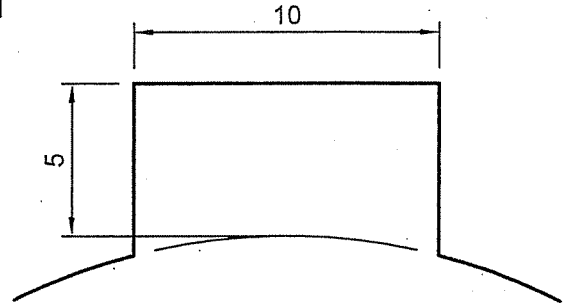
Hatırlatmalar:



DETAY A
1:1



DETAY B
4:1



Osman Günhan Bayat
Zafer Emre Ergün

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-315

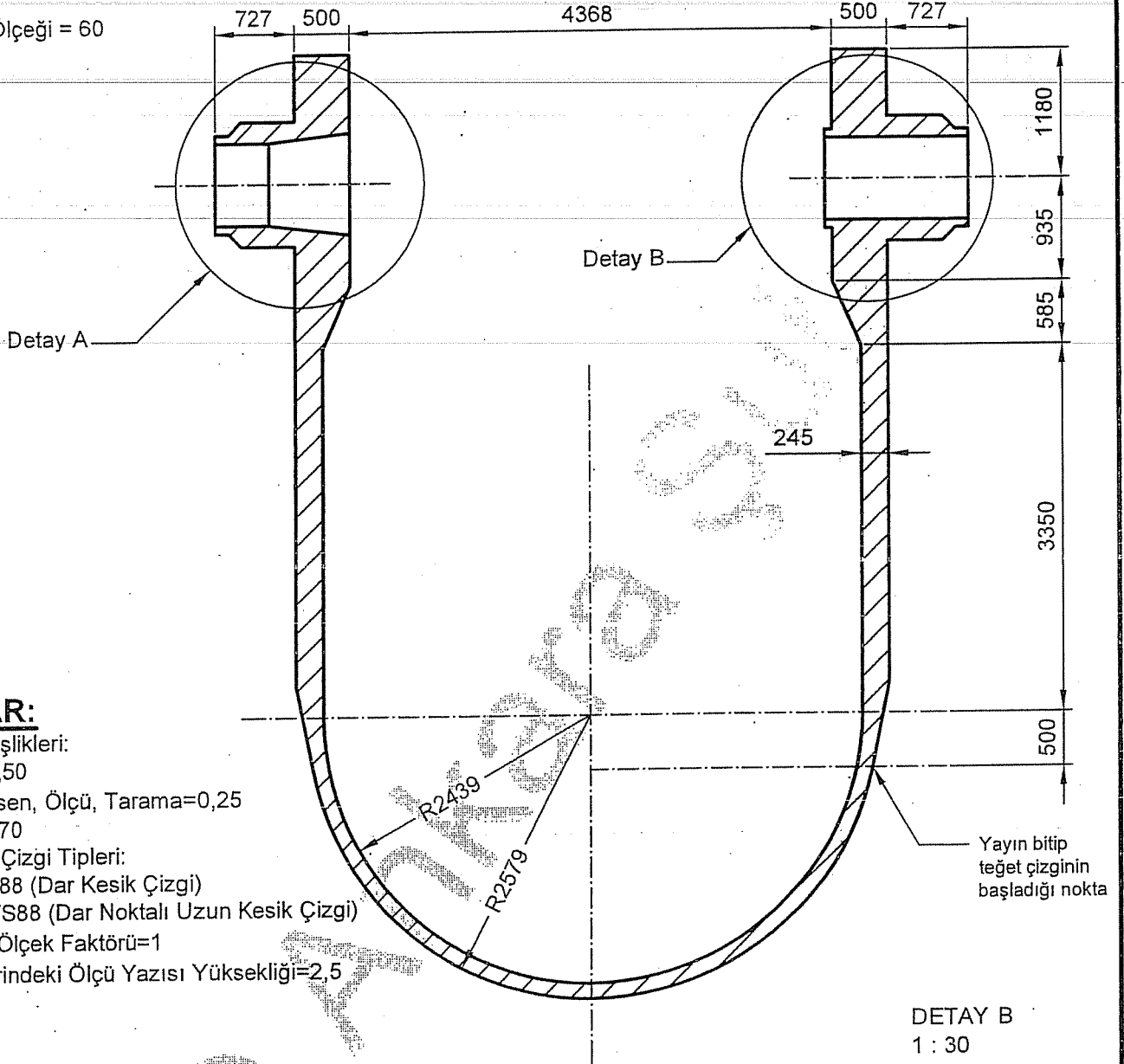
Konu:
Görüntü ve Çıktı Alma

Hatırlatmalar:
Görüntü Alma Komutu (mview)

ÖLÇEK 1 : 60
METRİK

Autodesk

Tarama Ölçeği = 60



NOTLAR:

Çizgi Genişlikleri:

Parça=0,50

Gizli, Eksen, Ölçü, Tarama=0,25

Antet=0,70

Kullanılan Çizgi Tipleri:

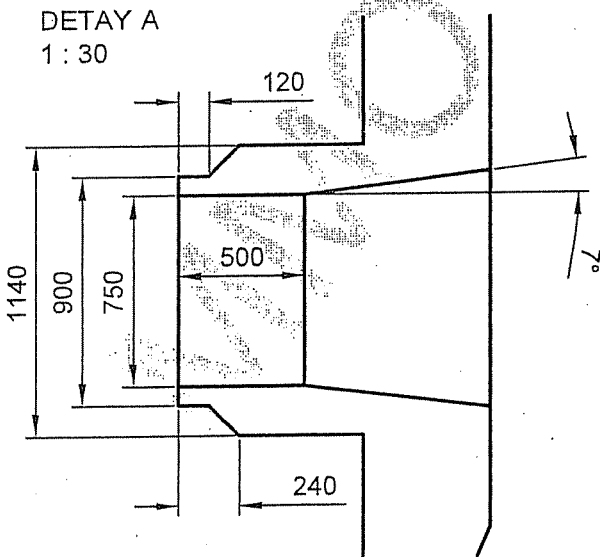
Gizli=TS88 (Dar Kesik Çizgi)

Eksen=TS88 (Dar Noktalı Uzun Kesik Çizgi)

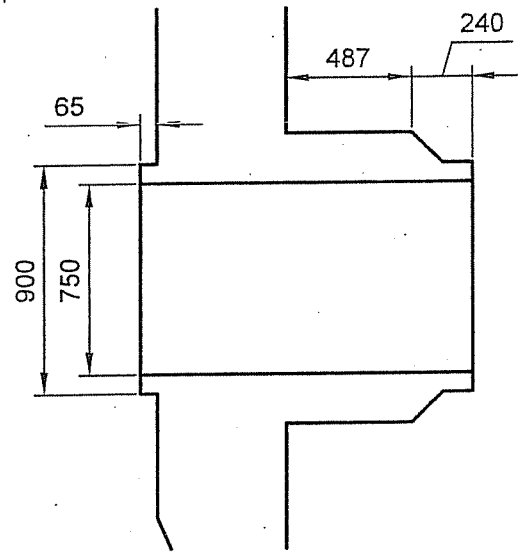
Çizgi Tipi Ölçek Faktörü=1

Kağıt Üzerindeki Ölçü Yazısı Yüksekliği=2,5

DETAY A
1 : 30



DETAY B
1 : 30



Osman Günhan Bayat
Arda İskenderoğlu, Alican Tabakçı

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-ACAD53

Konu:

2B Çizim ve Görüntü Alma Sınavı

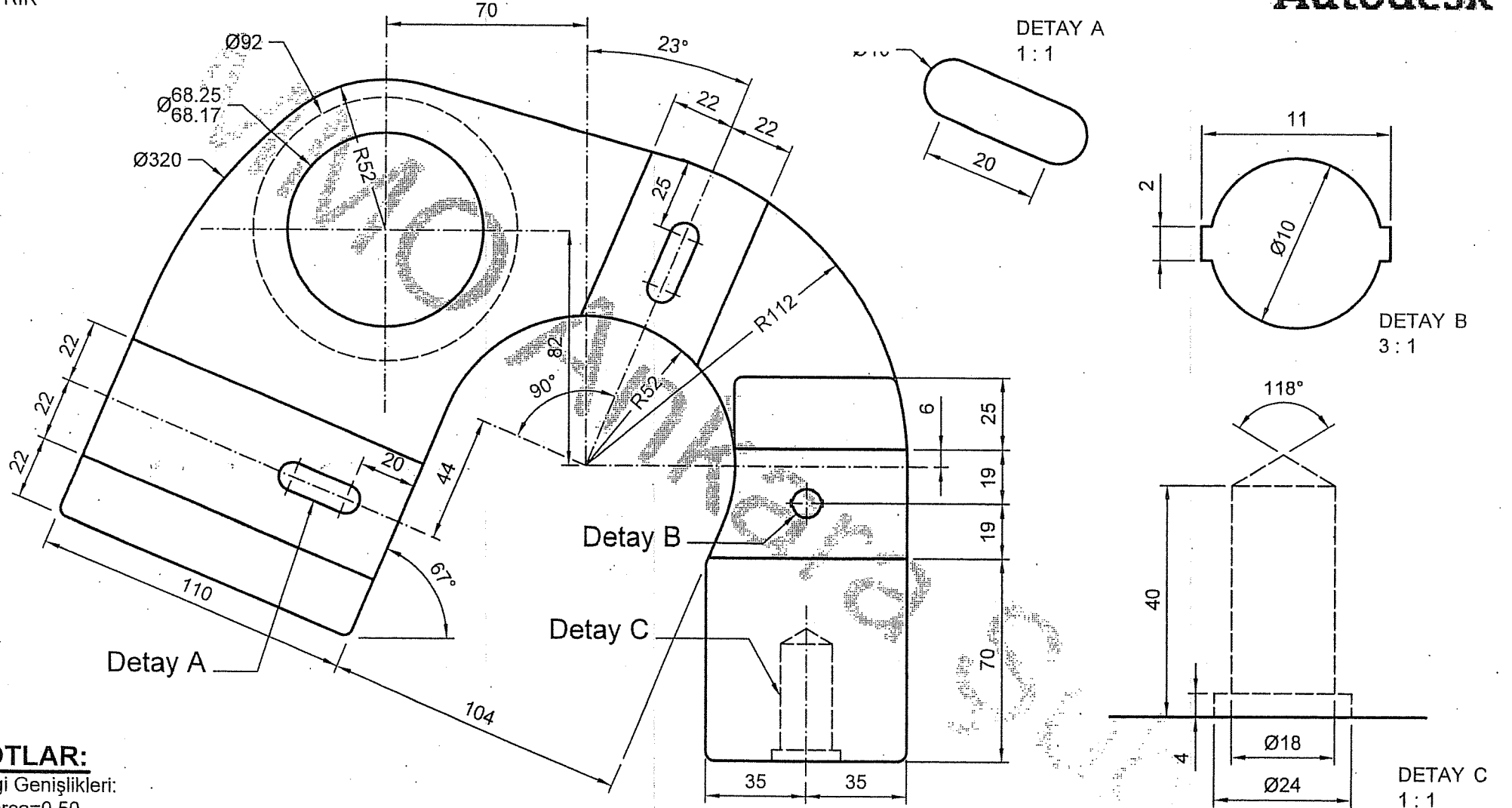
Hatırlatmalar:

Başarılar ...

ÖLÇEK 1:2
METRİK

Belirtilmeyen yuvarlatmalar için $R = 3$

Autodesk



NOTLAR:

Çizgi Genişlikleri:

Parça=0,50

Gizli, Eksen, Ölçü, Tarama=0,25

Antet=0,70

Kullanılan Çizgi Tipleri:

Gizli=TS88 (Dar Kesik Çizgi)

Eksen=TS88 (Dar Noktalı Uzun Kesik Çizgi)

Çizgi Tipi Ölçek Faktörü=1

Kağıt Üzerindeki Ölçü Yazısı Yüksekliği=2,5



Osman Günhan Bayat
Abdurrahman Kurşun, Serkan Çiçek

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-ACAD55

Konu:

2B Çizim ve Görüntü Alma Sınavı

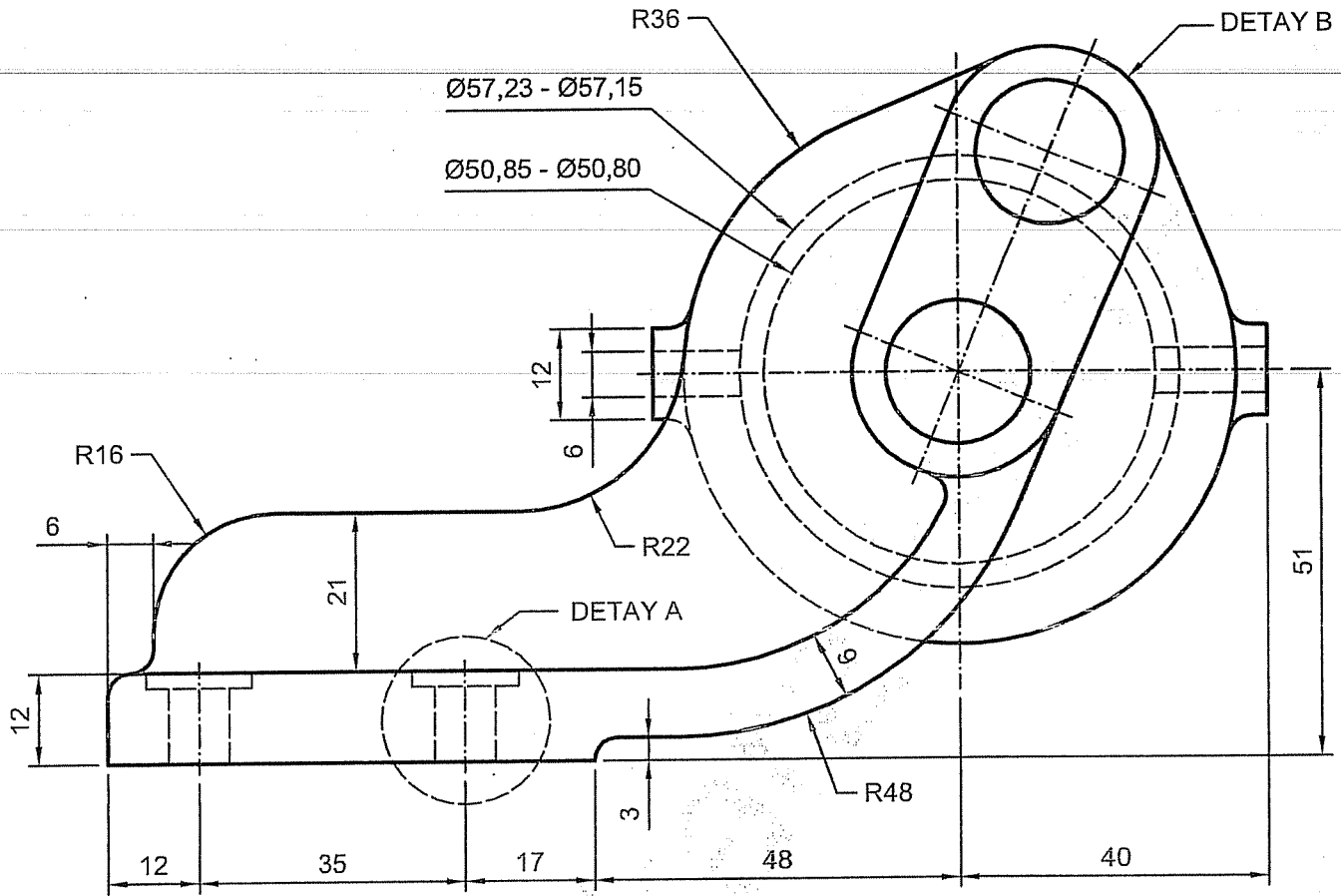
Hatırlatmalar:

Başarılar ...

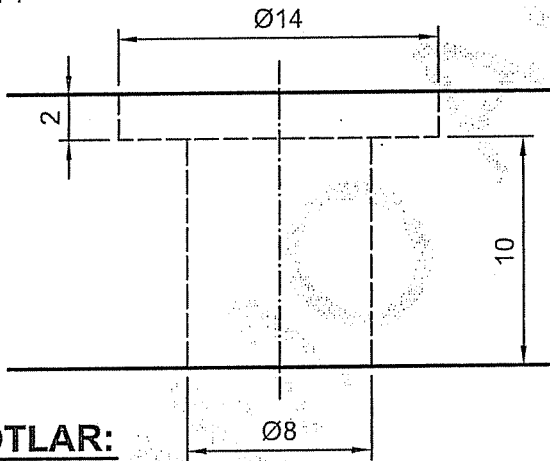
ÖLÇEK 1 : 1
METRİK

NOT: Belirtilmeyen yuvarlatmalar R3

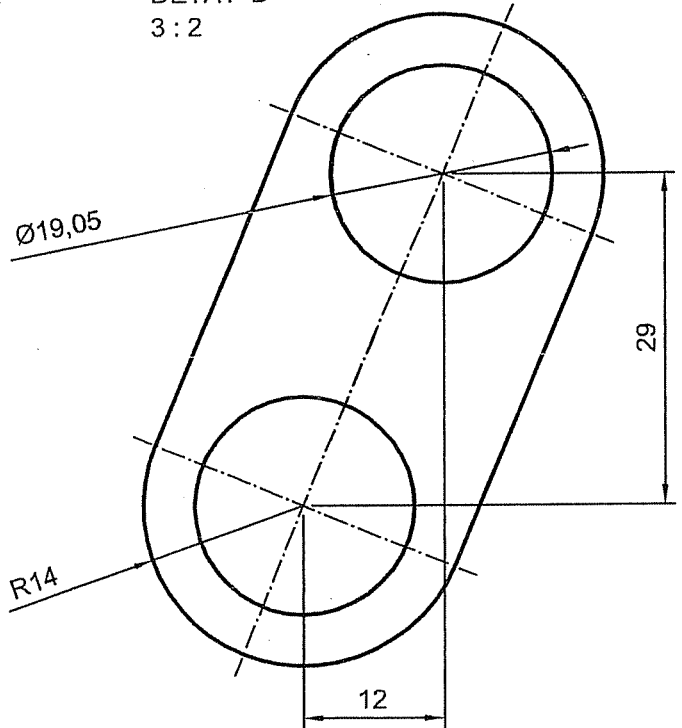
Autodesk



DETAY A
3 : 1



DETAY B
3 : 2



NOTLAR:

Çizgi Genişlikleri:

Parça=0,50

Gizli, Eksen, Ölçü, Tarama=0,25

Antet=0,70

Kullanılan Çizgi Tipleri:

Gizli=TS88 (Dar Kesik Çizgi)

Eksen=TS88 (Dar Noktalı Uzun Kesik Çizgi)

Çizgi Tipi Ölçek Faktörü=1

Kağıt Üzerindeki Ölçü Yazısı Yüksekliği=2,5



Osman Günhan Bayat
Mustafa Ocak, Onur Özmutaf

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-ACAD68

Konu:

2B Çizim ve Görüntü Alma Sınavı

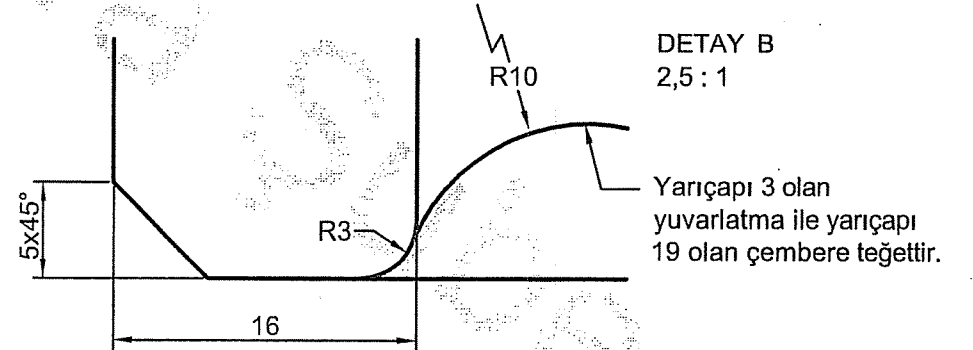
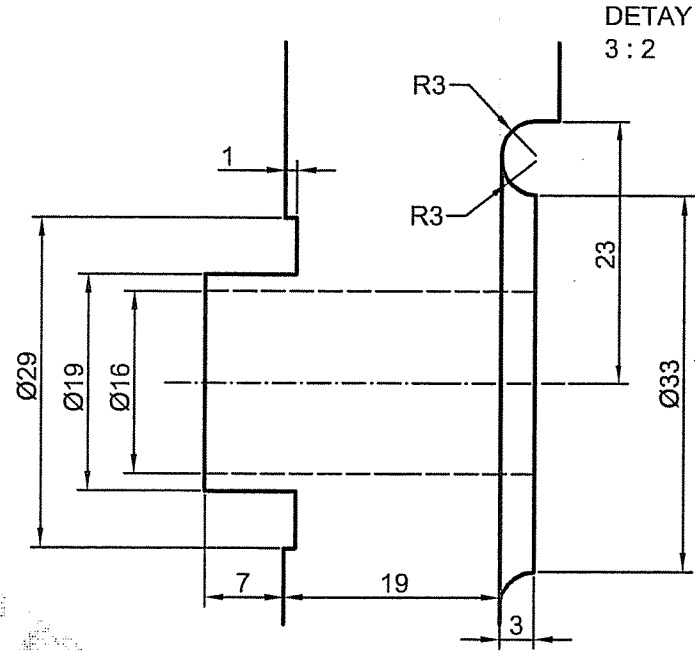
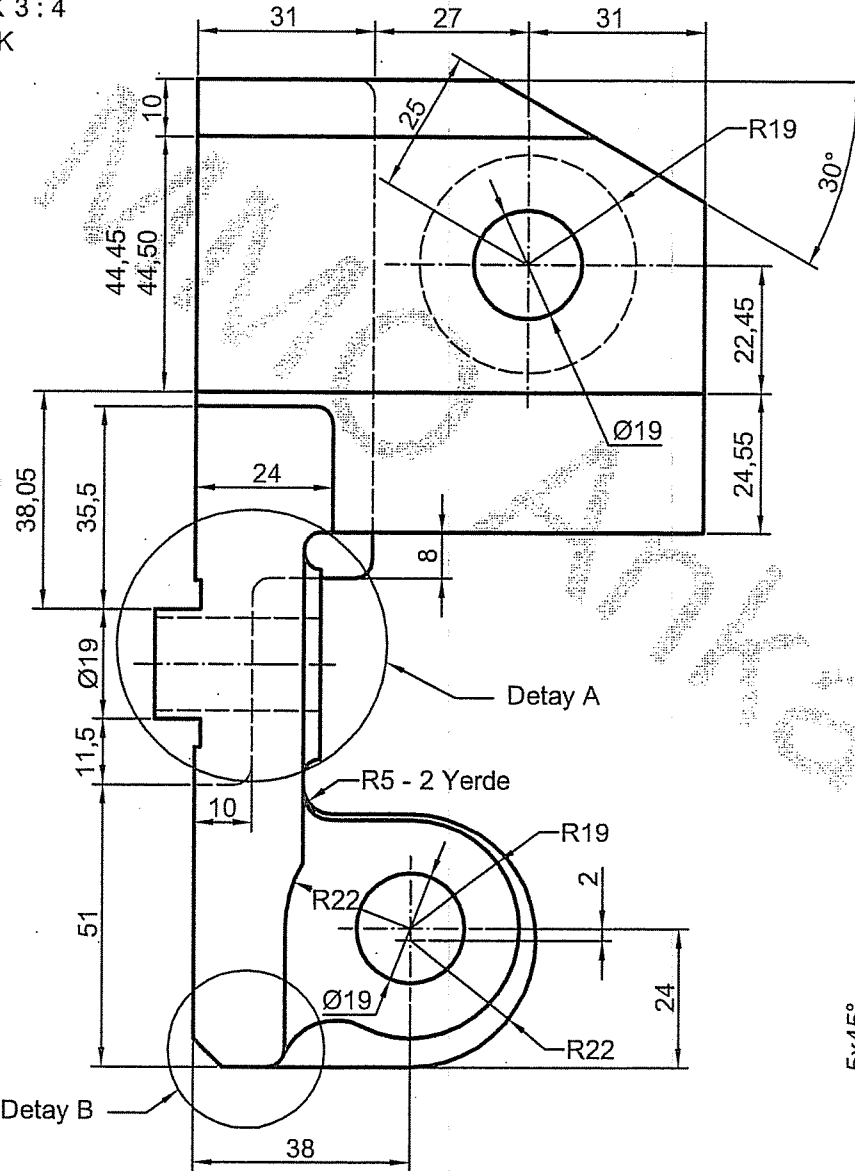
Hatırlatmalar:

Başarılar ...

ÖLÇEK 3 : 4
METRİK

NOT: Belirtilmeyen yuvarlatmalar R3

Autodesk



NOTLAR:

Çizgi Genişlikleri:

Parça=0,50

Gizli, Eksen, Ölçü, Tarama=0,25

Antet=0,70

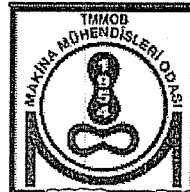
Kullanılan Çizgi Tipleri:

Gizli=TS88 (Dar Kesik Çizgi)

Eksen=TS88 (Dar Noktalı Uzun Kesik Çizgi)

Çizgi Tipi Ölçek Faktörü=1

Kağıt Üzerindeki Ölçü Yazısı Yüksekliği=2,5



Osman Günhan Bayat
Onur Özmutaf, Tolga Petekkaya

Makina Mühendisleri Odası
Ankara Şube

Resim No:
2B-ACAD73

Konu:

2B Çizim ve Görüntü Alma Sınavı

Hatırlatmalar:

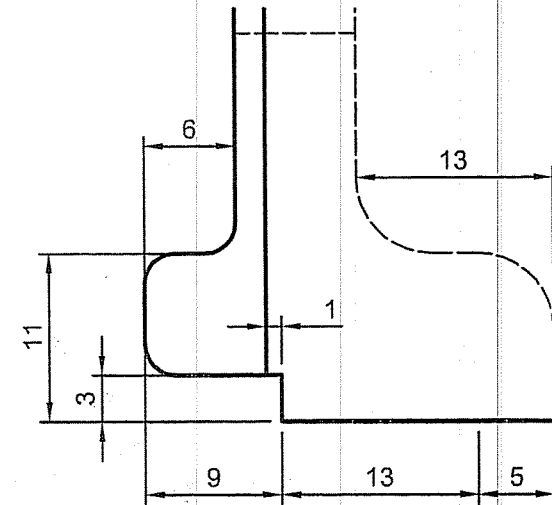
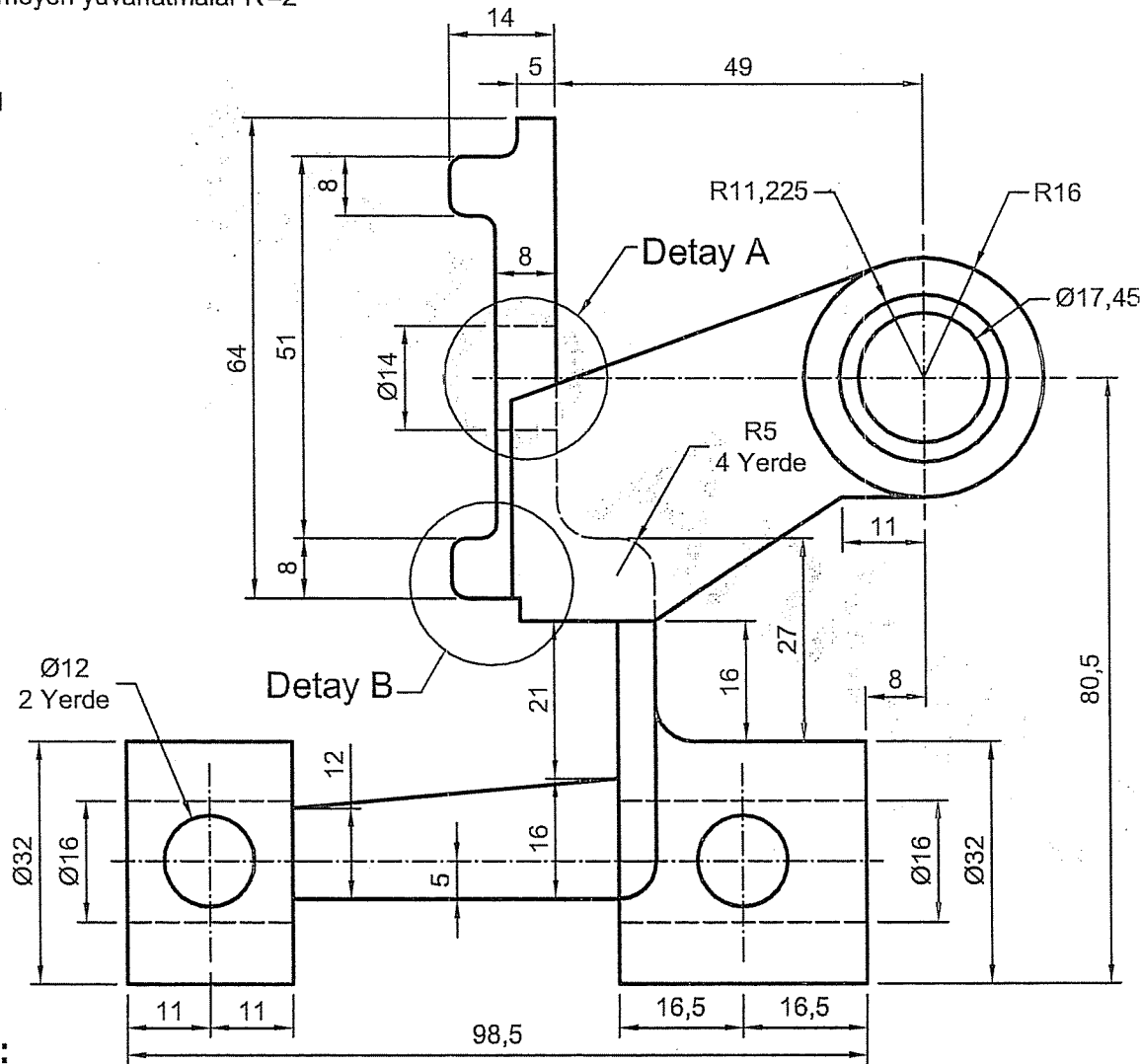
Başarılar ...

ÖLÇEK 1 : 1
METRİK

Auto

DETAY A
3:1

DETAY A
3:1



DETAY B
2:1

NOTLAR:

Çizgi Genişlikleri:

Parça=0,50

Gizli, Eksen, Ölçü, Tarama=0,25

Antet=0,70

Kullanılan Çizgi Tipleri:

Gizli=TS88 (Dar Kesik Çizgi)

Eksen=TS88 (Dar Noktalı Uzun Kesik Çizgi)

Çizgi Tipi Ölçek Faktörü=1

Kağıt Üzerindeki Ölçü Yazısı Yüksekliği=2,5



Osman Günhan Bayat
Serkan Çiçek; Onur Özmutaf

Makina Mühendisleri Odası
Ankara Şube

Resim No: 2B-ACAD80

Konu: 2B Çizim ve Görüntü Alma Sınavı

Hatırlatmalar: Başarılar ...