

## 2021 학년도 기계공학과 CADD (MEE1002)

CADD(Computer Aided Design and Drafting)

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Prof. Keun Ryu

2021년 9월 16일



**HANYANG UNIVERSITY**



## CONTENTS

**I** 2D Sketch 실습(Trim, Corner, Transform)

**II** 예제 도면을 통한 실습

CADD (Computer Aided Design and Drafting)

# I 2D Sketch 실습

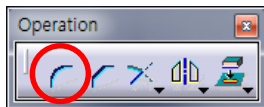
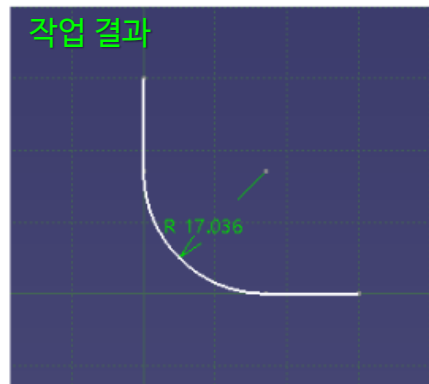
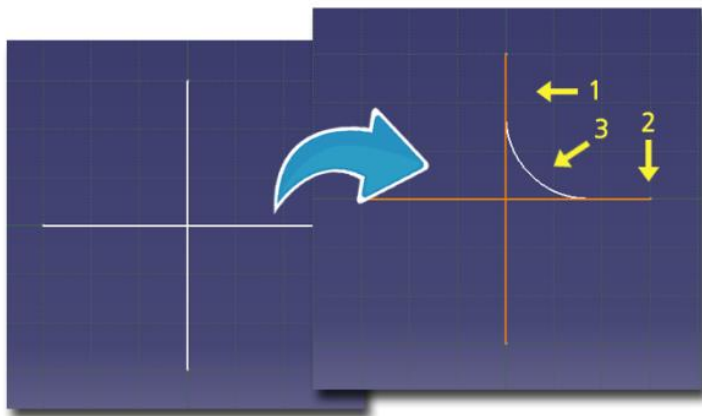
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

### Corner

#### 1-1 Trim All Elements

- 선택한 두 개의 Elements를 모두 제거하며 라운드 생성



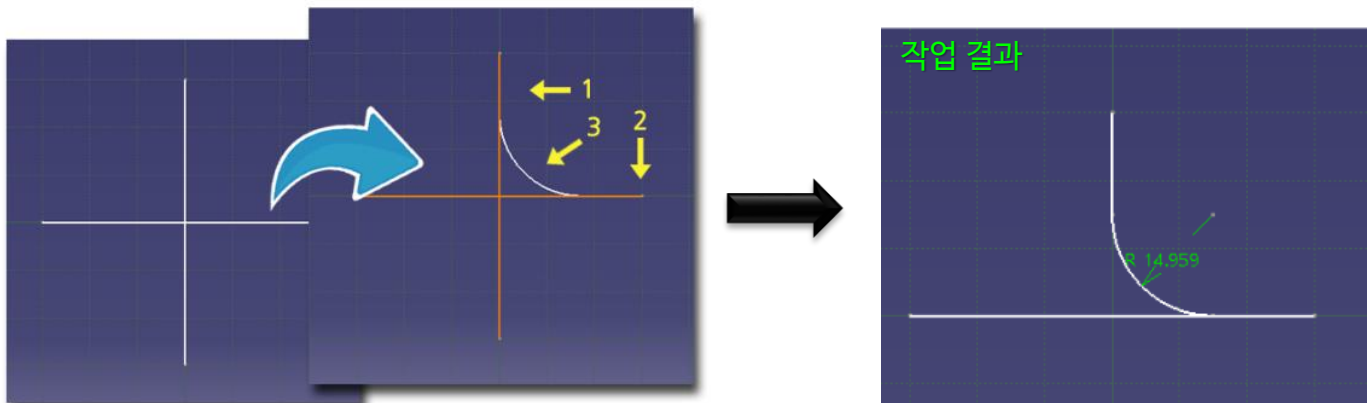
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

### Corner

#### 1-2 Trim First Elements

- 두 개의 Elements 중 첫 번째 선택한 Element만 제거하며 라운드 생성



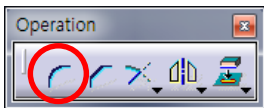
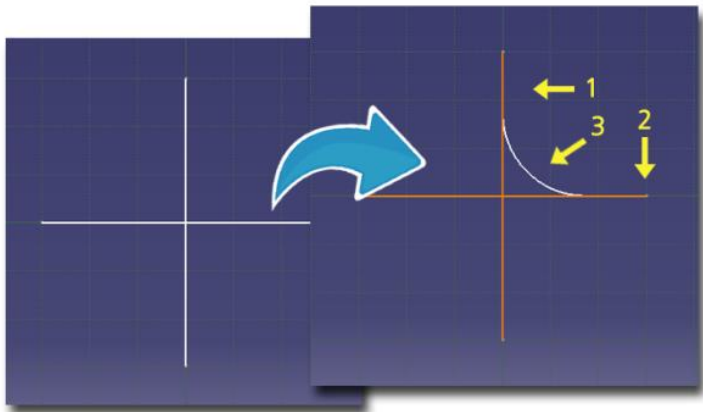
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

### Corner

#### 1-3 No Trim

- 선택한 두 개의 Elements를 유지한 상태로 라운드 생성



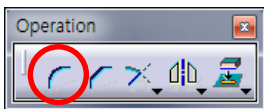
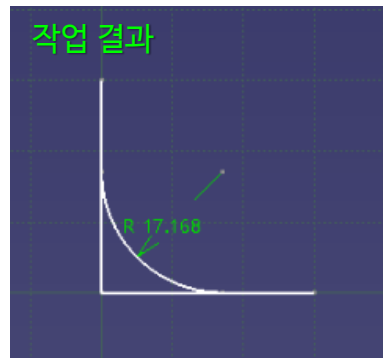
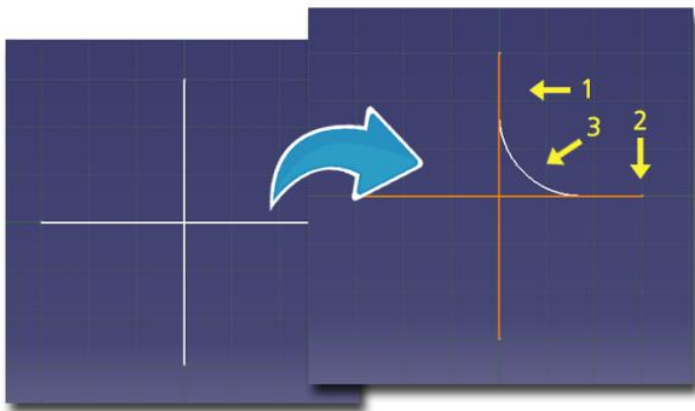
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

### Corner

#### 1-4 Standard Lines Trim

- 선택한 두 개의 Elements를 실선 형태로 만들며 라운드 생성



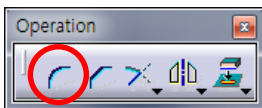
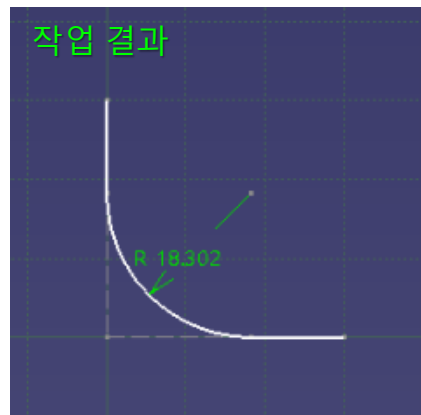
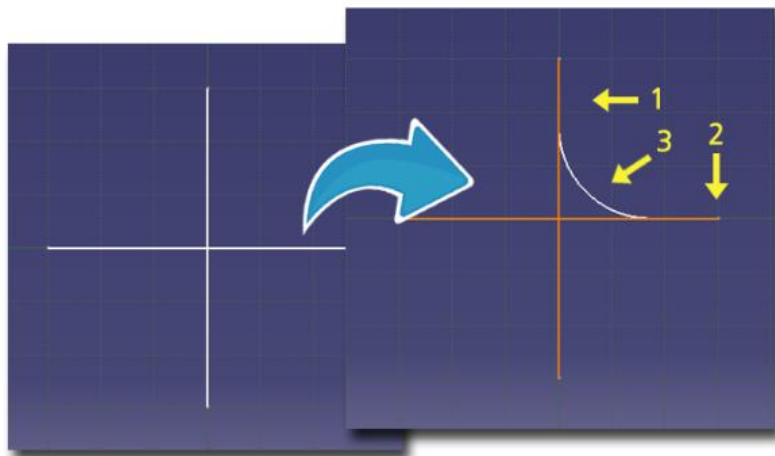
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

### Corner

#### 1-5 Construction Lines Trim

- 선택한 두 개의 Elements를 보조라인으로 만들며 라운드 생성

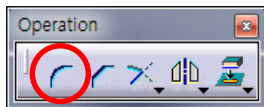




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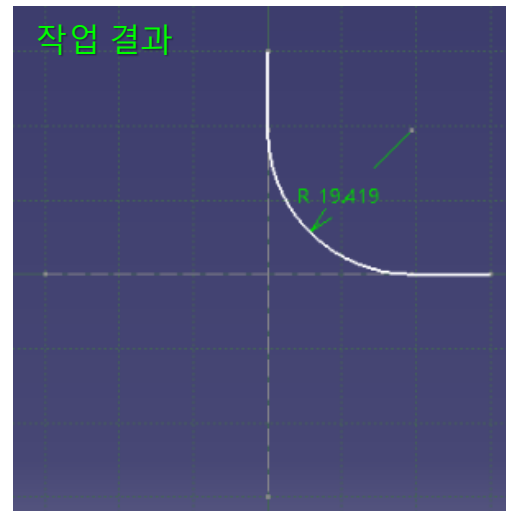
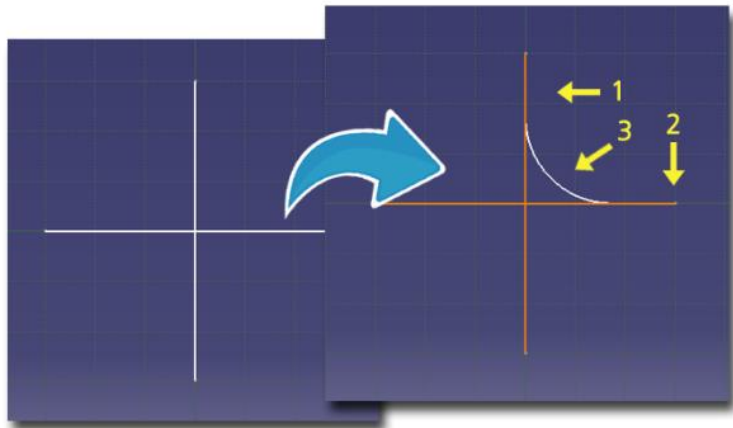
## 2D Sketch 실습

### Corner



### 1-6 Construction Lines No Trim

- 선택한 두 개의 Elements를 보조라인으로 만들며 상태 유지하며 라운드 생성



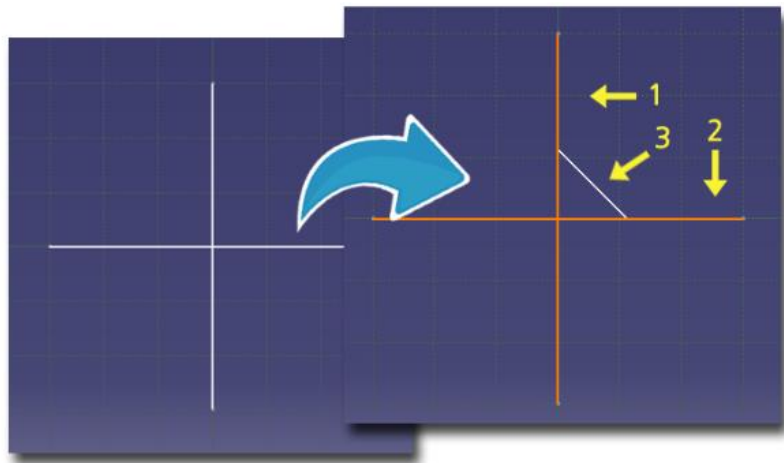
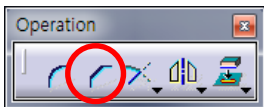
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

### Chamfer

#### 2-2 Trim First Elements

- 두 개의 Elements 중 첫번째 선택한 Element만 제거하며 모따기

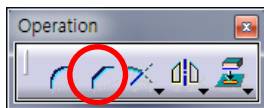


# 1 CADD (Computer Aided Design and Drafting)

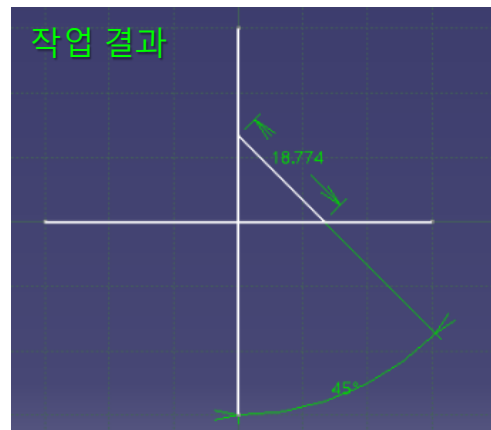
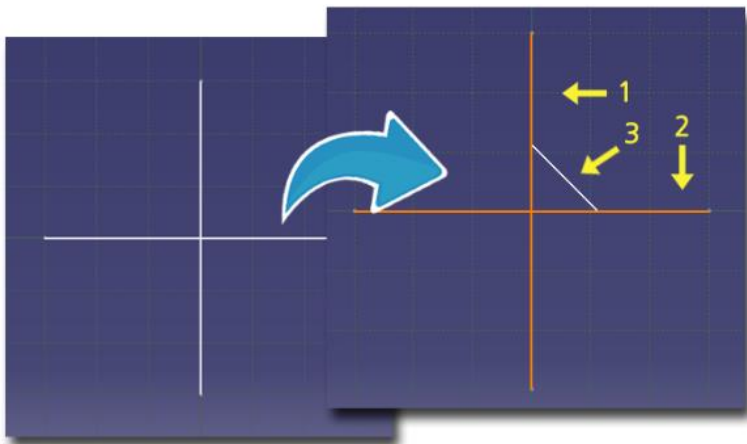
## 2D Sketch 실습

### Chamfer

#### 2-3 No Trim



- 두 개의 Elements 를 남겨놓고 모따기



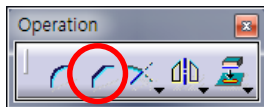
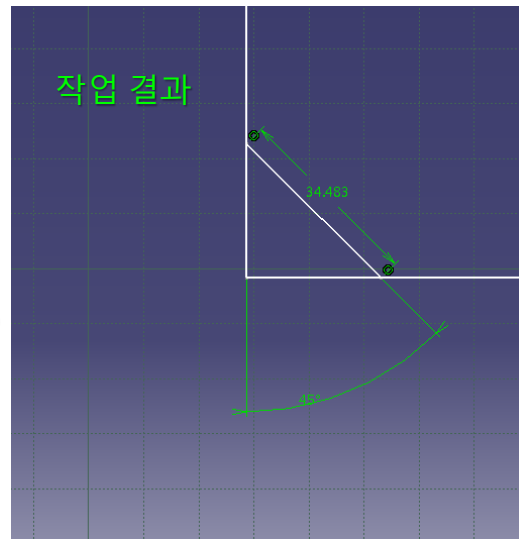
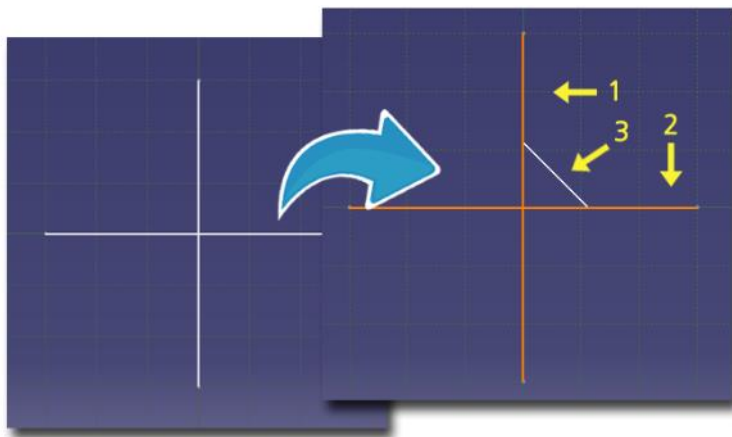
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

### Chamfer

#### 2-4 Standard Lines Trim

- 선택한 두 개의 Elements를 실선 형태로 만들어 모따기



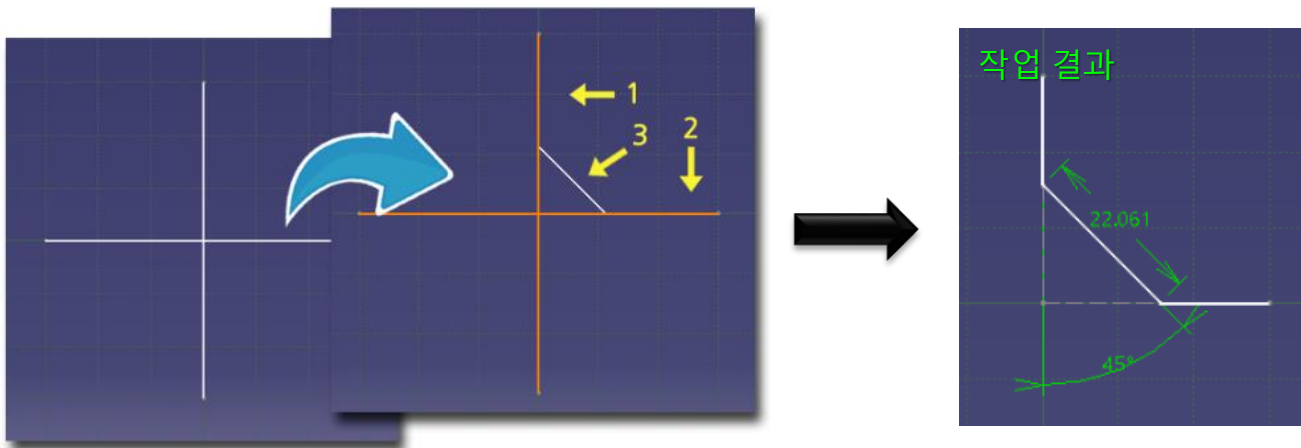
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

### Chamfer

#### 2-5 Construction Lines Trim

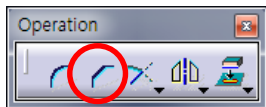
- 선택한 두 개의 Elements를 보조 라인으로 만들며 모따기



# 1 CADD (Computer Aided Design and Drafting)

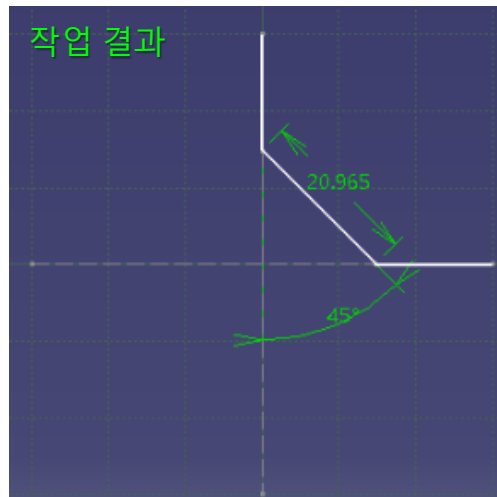
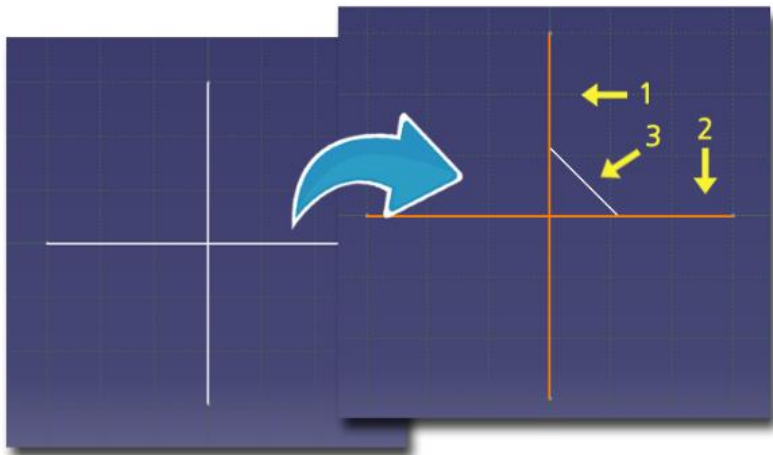
## 2D Sketch 실습

### Chamfer



#### 2-6 Construction Lines No Trim

- 선택한 두 개의 Elements를 보조 라인으로 만들며 상태 유지하며 모따기



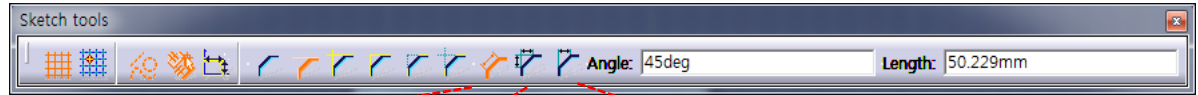
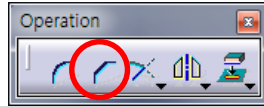
# 1

## CADD (Computer Aided Design and Drafting)

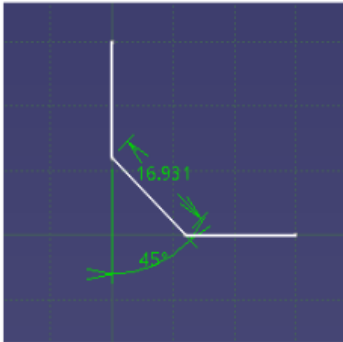
### 2D Sketch 실습

#### Chamfer

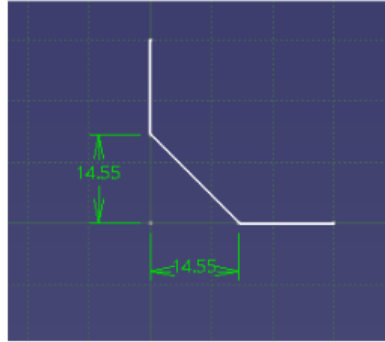
#### 2-7 치수 부여 방법



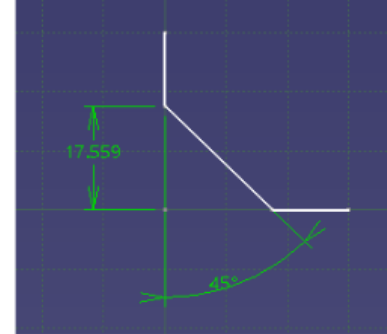
#### 1. Angle and Hypotenuse



#### 2. First and Second Length



#### 3. Angle and First Length



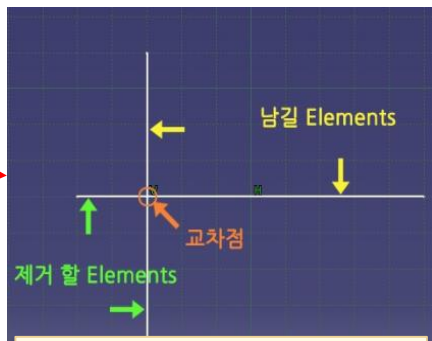
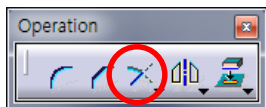
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

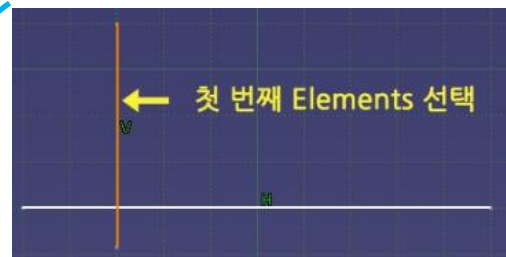
### Trim

#### 3- 1Trim

- 두 개의 Element를 교차점 기준으로 제거 또는 연장하는 기능
- ✓ Element 선택 시 남겨질 부분을 선택한다.
- ✓ Sketch Tools에 2가지 기능이 있다.



1. Trim All Elements





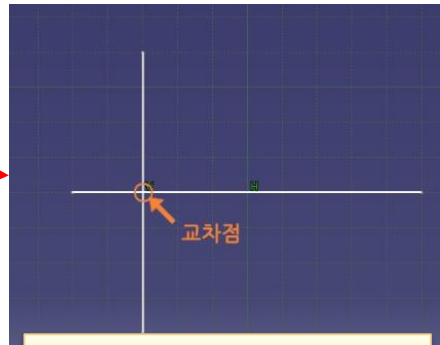
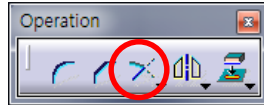
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

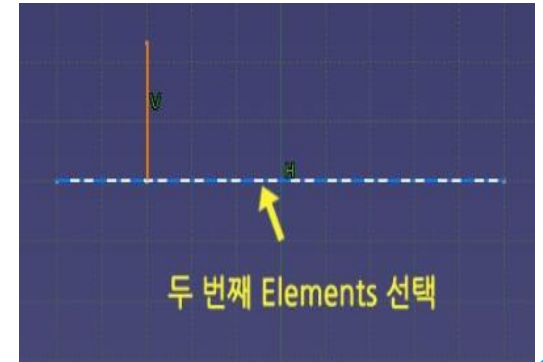
### Trim

#### 3- 1Trim

- 두 개의 Element를 교차점 기준으로 제거 또는 연장하는 기능
- ✓ Element 선택 시 남겨질 부분을 선택한다.
- ✓ Sketch Tools에 2가지 기능이 있다.



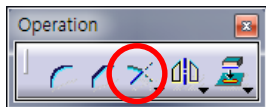
2. Trim First Elements



# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

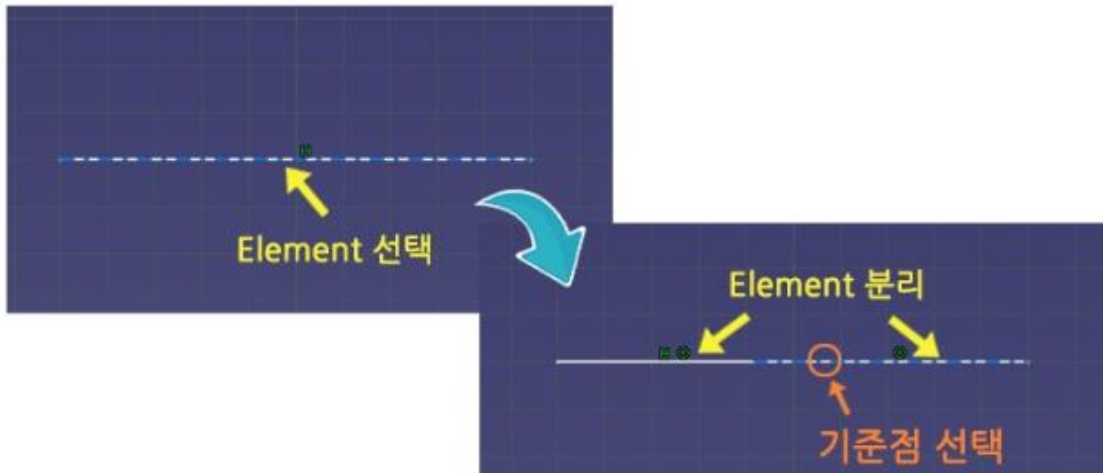
### Trim



### 3- 2 Break



- 한 개의 Element를 절단하여 두 개의 Element로 분리하는 기능



# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

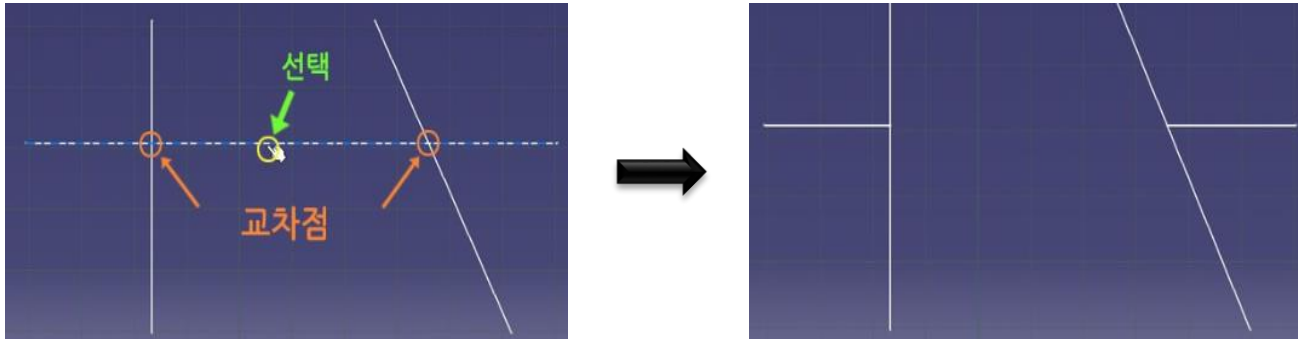
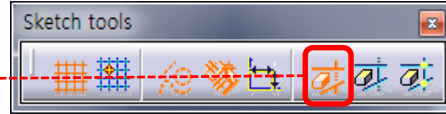
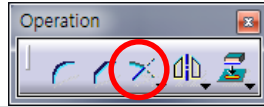
### Trim

#### 3- 3 Quick Trim

- 교차점 기준으로 Trim 또는 Break 하는 기능

#### 1. Break and Rubber In

- 교차점 기준으로 선택한 Element 제거



# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

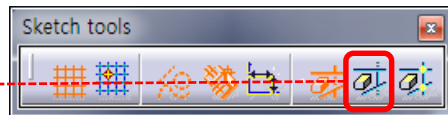
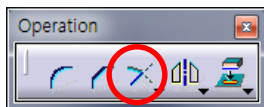
### Trim

#### 3- 3 Quick Trim

- 교차점 기준으로 Trim 또는 Break 하는 기능

#### 2. Break and Rubber Out

- 교차점 기준으로 선택한 Element 를 제외하고 제거



# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

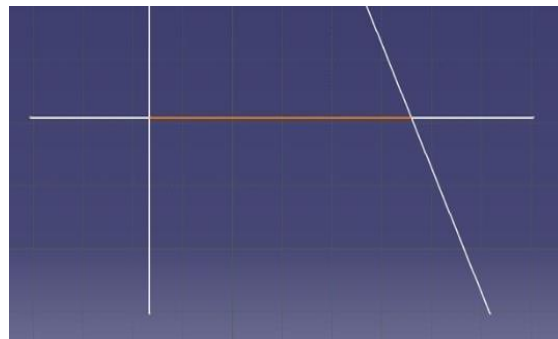
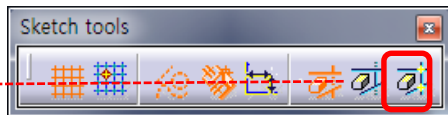
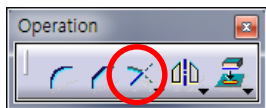
### Trim

#### 3- 3 Quick Trim

- 교차점 기준으로 Trim 또는 Break 하는 기능

#### 3. Break and Keep

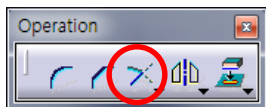
- 교차점 기준으로 선택한 Element 를 Break



# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

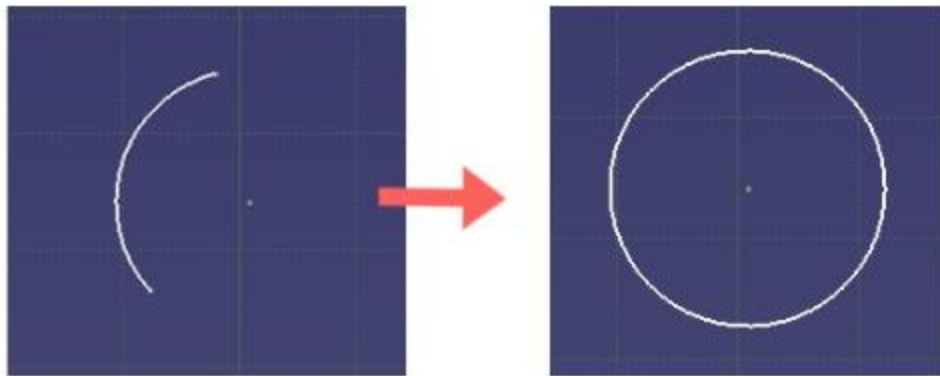
### Trim



### 3- 4 Close Arc



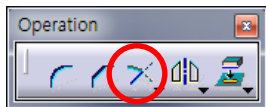
- 원호 (Arc) 또는 타원 (Ellipse)의 Profile이 열려있을 때 닫아주는 기능



# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

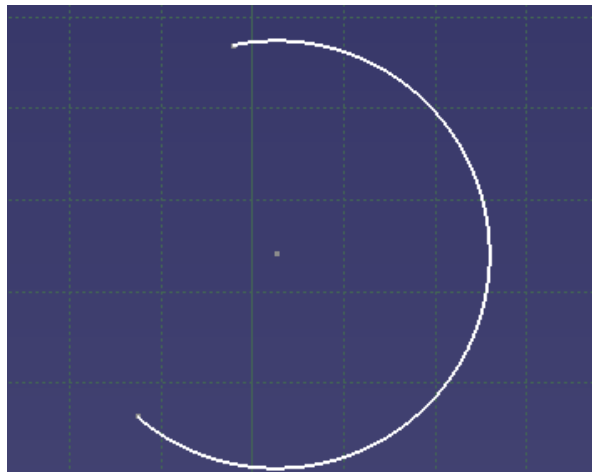
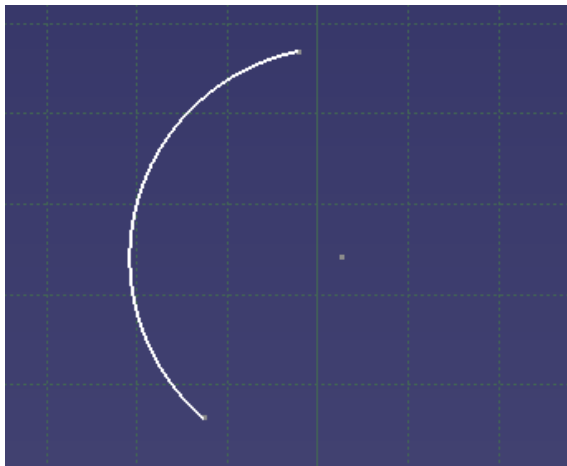
Trim



3- 5 Complement



- 열려 (Open) 되어 있는 원호 (Arc) 또는 타원 (Ellipse)의 Profile을 반대 방향으로 전환시켜주는 기능



# 1

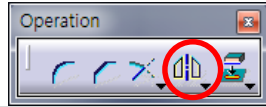
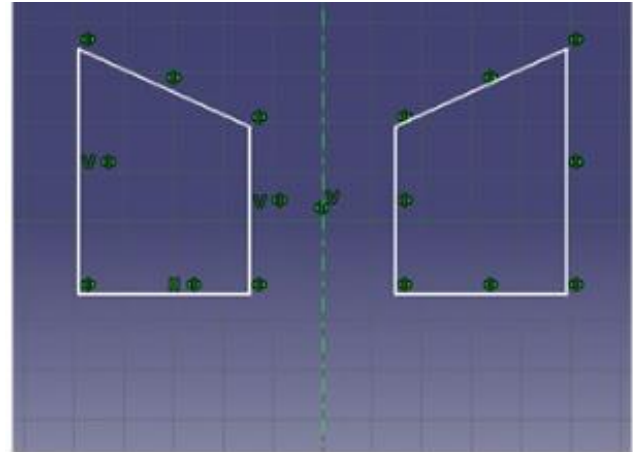
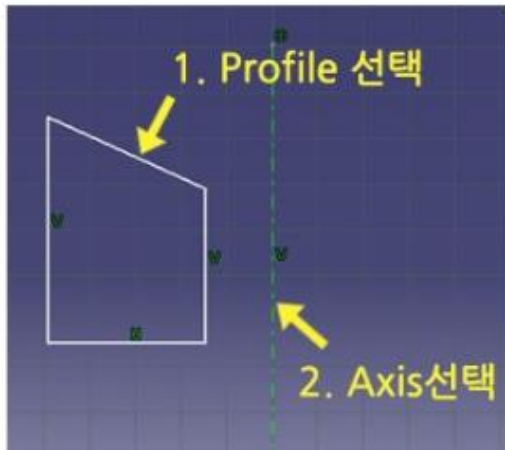
## CADD (Computer Aided Design and Drafting)

### 2D Sketch 실습

#### Mirror

#### 4-1 Mirror

- Axis 기준으로 선택한 Element를 대칭으로 복사하는 기능

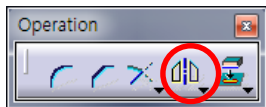




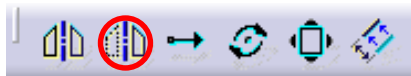
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

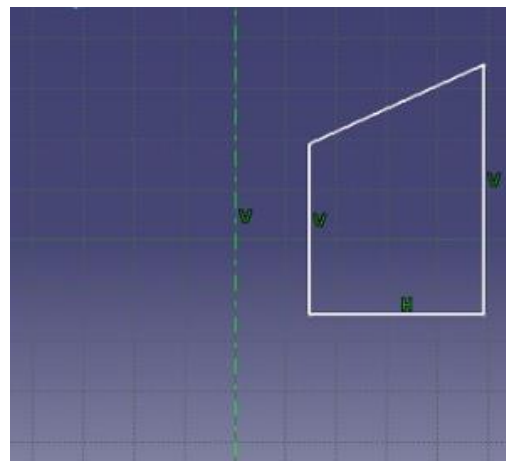
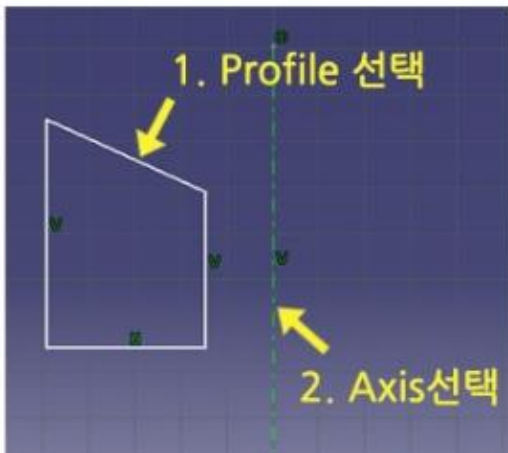
### Mirror



### 4-2 Symmetry



- Axis 기준으로 선택한 Element를 대칭으로 이동하는 기능



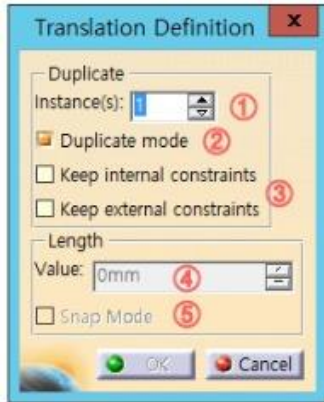
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

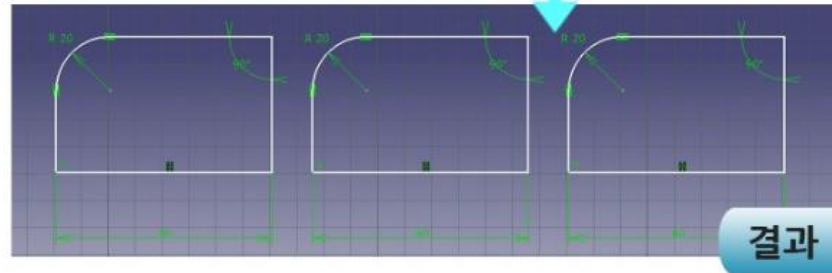
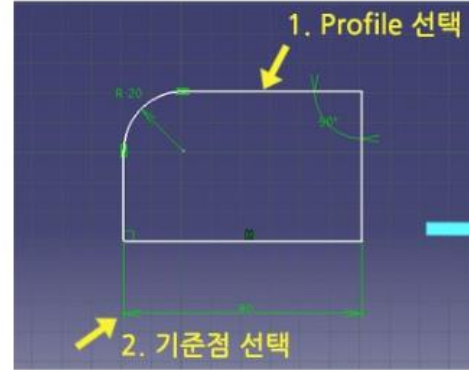
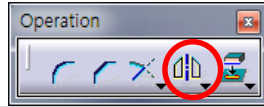
### Mirror

#### 4-3 Translate

- 선택한 Element를 이동하거나 복사하는 기능



- ① Instance(s) : 복사할 개수 (Duplicate mode 활성화 시 수행 가능)
- ② Duplicate mode : 활성화 시 복사 기능 / 비 활성화 시 이동 기능
- ③ Keep internal / external constraints : 복사 시 구속조건 포함
- ④ Value : 이동 / 복사 시 거리 값
- ⑤ Snap Mode : 마우스 커서 조작 시 5mm 단위로 조정



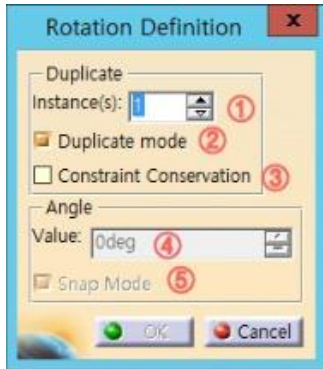
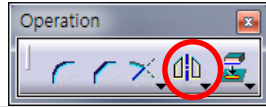
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

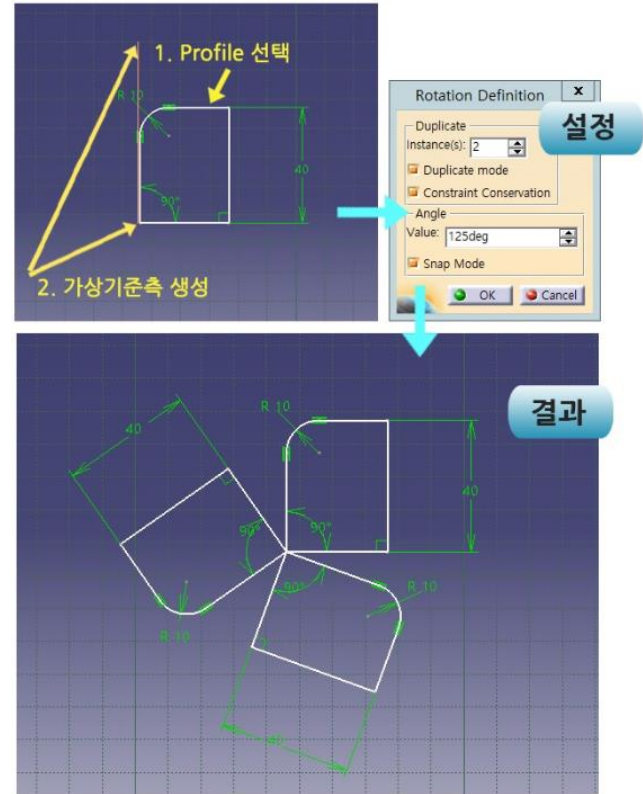
### Mirror

#### 4 -4 Rotate

- 선택한 Element를 임의의 축 기준으로 회전 이동 또는 회전 복사하는 기능



- ① Instance(s) : 복사할 개수 (Duplicate mode 활성화시 수행 가능)
- ② Duplicate mode : 활성화시 복사 기능 / 비 활성화시 회전 기능
- ③ Constraint Conservation : 복사본 구속조건 포함
- ④ Value : 회전 / 복사시 거리 값
- ⑤ Snap Mode : 마우스 커서 조작 시 5deg 단위로 조정



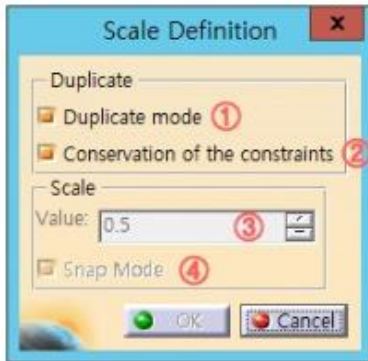
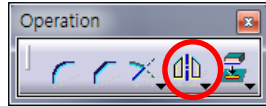
# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

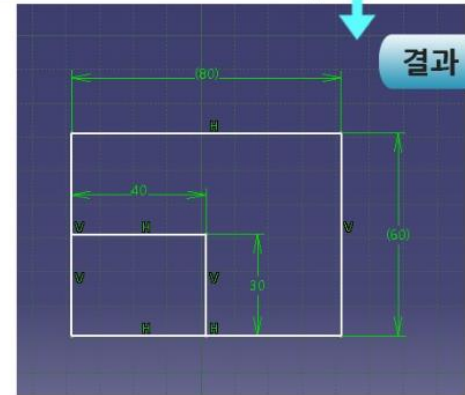
### Mirror

#### 4 -5 Scale

- 선택한 Element를 임의의 Point 기준으로 대상을 확대 또는 축소하는 기능



- ① Duplicate mode : 활성화시 복사본 축소, 확대 가능  
비활성화시 원본 축소, 확대 가능
- ② Conservation of the constraints : 복사본 구속조건 포함
- ③ Value : 축소, 확대 Ratio값
- ④ Snap Mode : 마우스 커서 조작시 0.1 단위로 조정



# 1 CADD (Computer Aided Design and Drafting)

## 2D Sketch 실습

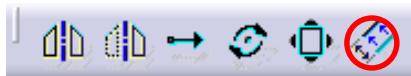
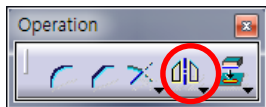
### Mirror

#### 4 -6 Offset

- 선택한 Element를 수직방향으로 복사하는 기능



- ① No Propagation : 선택한 Element만 Offset
- ② Tangent Propagation : 선택한 Element와 Tangency한 Element를 Offset
- ③ Point Propagation : 선택한 Element와 Point로 연결 된 Element를 Offset
- ④ Both Propagation : 선택한 Element를 양방향으로 Offset



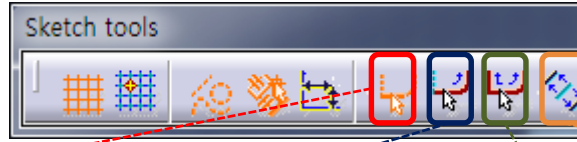
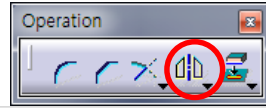
# 1

## CADD (Computer Aided Design and Drafting)

### 2D Sketch 실습

Mirror

4-6 Offset



①

②

③

④

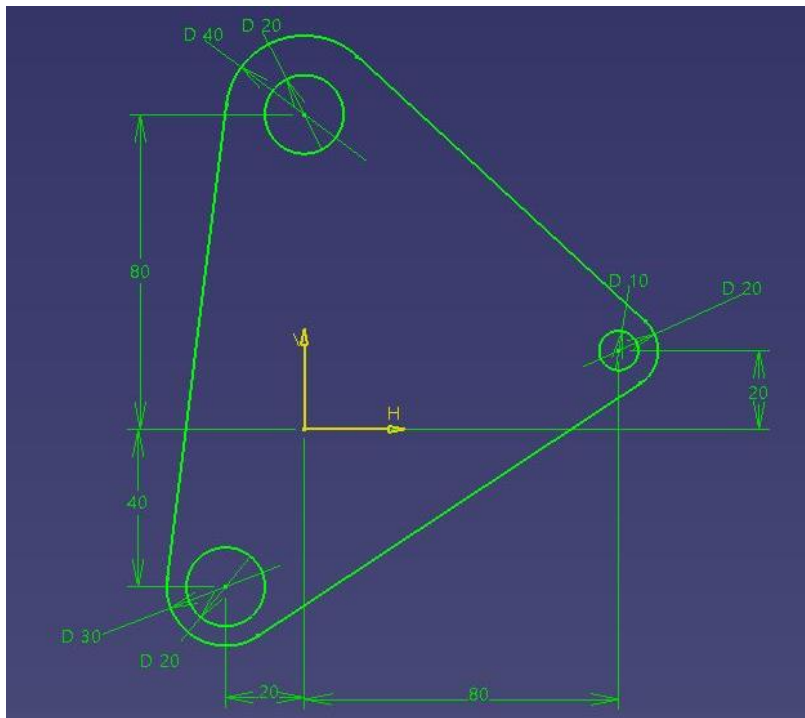


CADD (Computer Aided Design and Drafting)

## 예제 도면을 통한 실습

# 3 CADD (Computer Aided Design and Drafting)

## 예제 도면을 통한 실습

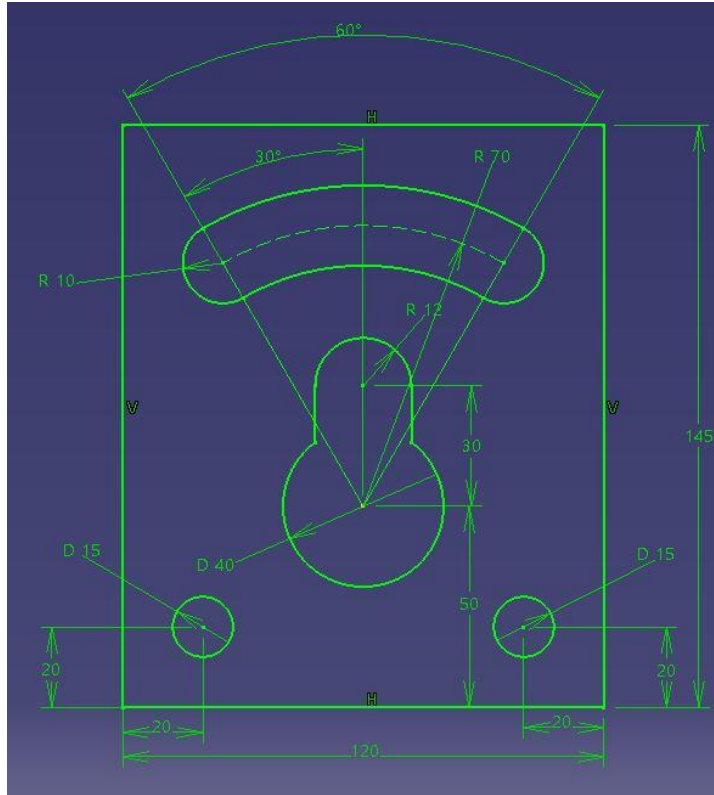




# 3

## CADD (Computer Aided Design and Drafting)

### 예제 도면을 통한 실습



# 감사합니다