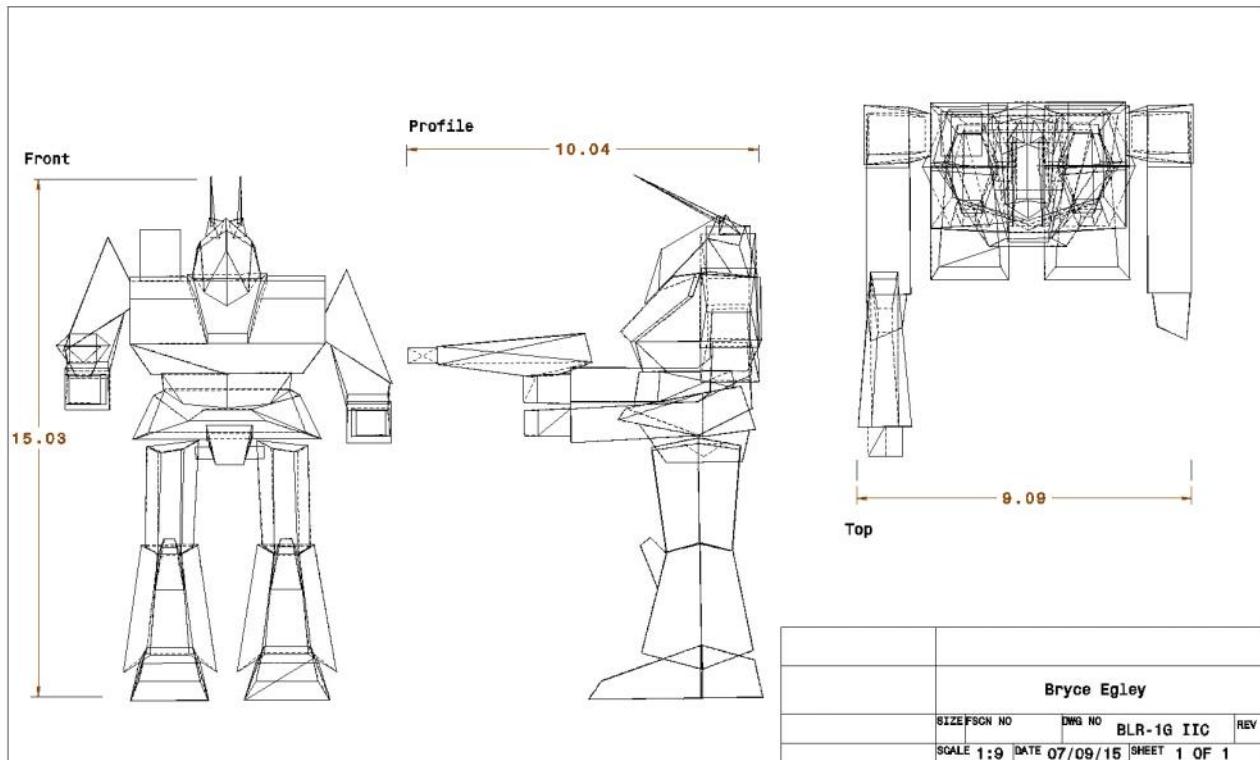


# Cover Page

Thursday, July 09, 2015  
6:20 AM

# Engineering/Technical Graphics

Bryce Egley



# Syllabus

Thursday, July 09, 2015  
6:22 AM



CGT\_163\_su  
mmer\_se...

## **CGT 163: Graphical Communication And Spatial Analysis**

### **Syllabus**

**Summer Semester 2015**

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#### **Course Instructor**

Karthik Sukumar – ksukumar@purdue.edu

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#### **Instructor Office Hours**

Mondays & Tuesdays: 2 to 4 pm at KNOY

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#### **Course Description**

CGT 163 is an introductory course in computer graphics applications for mechanical and aeronautical related professions. Experiences focus on visualization, sketching, graphic standards and problem solving strategies for engineering design. The course will emphasize the proper use of parametric solid modeling for design intent.

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#### **Course Objectives**

1. Describe the importance of engineering/technical graphics in the design of made products. (foundational applied understanding)
  2. To advance your spatial abilities that would allow you to successfully communicate engineering ideas using visual techniques. (foundational applied understanding)
  3. Utilize two and three dimensional geometry for engineering and technical applications. (foundation)
  4. Apply basic industry graphics standards to engineering design. (operationalize)
  5. Sketch basic freehand representations of technical concepts. (operationalize)
  6. Demonstrate proficiency using basic 3D computer-aided design (CAD) processes. (operationalize)
- 

#### **Textbooks**

- *Applied Geometry for Engineering Design*, Miller, C.L. (2011) 1<sup>st</sup> Edition  
<http://www.eacademicbooks.com/EDG.asp>

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### Grading

Activity	Percentages	Grading Scale	Grade*
Assignments	50%	92	A
Quizzes	25%	89	A-
Final Project	20%	87	B+
Notebook	05%	82	B
<b>Total</b>	<b>100%</b>	79	B-
		77	C+
		72	C
		69	C-
		67	D+
		62	D
		59	D-
		<58	F

---

- Regardless of the above percentages, **any student who fails to submit by the deadline 13 or more assignments will receive a failure (F) for the course.**
- Regardless of the above percentages, **any student who attends fewer than 80% of the laboratory preparation by not submitting during the laboratory preparation laboratory attendance worksheets (4 or > late or missed laboratory attendance worksheets) will receive a failure (F) for the course.**
- **All email correspondence have the following requirements:**
  - The email subject line must be **CGT 163**

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### Assignments

- Every assignment (both CAD and sketching) will have a corresponding naming convention to assist in quick return of graded materials. The naming convention, demonstrated below, will also correspond to the filename of any saved CAD homework.

022309      01 Section number (Only one section this semester)  
                23 Your assignment number  
                09 Assigned seat number in your laboratory

- Assignments will be collected at the beginning of the next laboratory session with the exception of lecture sketches, which are due at any time during the lecture in which they were assigned. **Late assignments will NOT be accepted (ten minutes (10) after the beginning of lectures or labs), unless prior arrangements are made with your instructor.**
- Sketch and CAD assignments are due at the beginning of laboratory.
- You must be present in laboratory to receive credit for laboratory assignments. This is when all assignments are graded and performance feedback is individually given. Even if you make the submission deadline on **Blackboard Learn** you still have to come to laboratory to receive credit for the assignments.
- Having someone else turn in any assignment(s) for you so that you do not attend a lecture, laboratory preparation, or laboratory will result in a grade of zero being assigned to all assignments that are due.
  1. If you have to miss a lecture, laboratory preparation, or laboratory you need to contact your instructor **PRIOR** to your lecture, laboratory preparation, or laboratory and make any necessary arrangements.

2. If you are ill and cannot attend your lecture, laboratory preparation, or laboratory then you need to contact your instructor via email the same day for any consideration of a deadline extension.
- Any questions regarding the grade assigned on an assignment or a test must be directed to your laboratory instructor within two weeks of the assignment deadline date or the date of the test administration.

### **Academic Honesty**

Students are encouraged to work together but **each student is required to do their own work**. Standards set by Purdue University as outlined in the Student Handbook and the University Regulations (current edition) will be observed in this course. Any student found participating in cheating, plagiarism, copying material from another person's disk, using illegal cribs or other materials forbidden during a written or practical examination, lying to course instructors and/or lab assistants about his/her work, stealing tests, quizzes, or answer keys, or any such like activities will be considered in conflict with the printed academic honesty guidelines as set out by Purdue University, the School of Technology, and the Department of Computer Graphics Technology. All matters that arise in regards to students being found to be in conflict with these guidelines will be reported to the Office of the Dean of Students, and the appropriate Purdue University administration officers, for consideration and possible disciplinary action. Specifically any student caught cheating in CGT 163 will receive an "F" for the course grade. Students may refer to the [Purdue University Student Conduct Policy](#).

**EMERGENCY NOTIFICATION PROCEDURES** are based on a simple concept – if you hear a fire alarm inside, proceed outside. If you hear a siren outside, proceed inside.

- **Indoor Fire Alarms** mean to stop class or research and immediately **evacuate** the building. o Proceed to your Emergency Assembly Area away from building doors. **Remain outside** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.
- **All Hazards Outdoor Emergency Warning Sirens** mean to immediately seek shelter (**Shelter in Place**) in a safe location within the closest building. o "Shelter in place" means seeking immediate shelter inside a building or University residence. This course of action may need to be taken during a tornado, a civil disturbance including a shooting or release of hazardous materials in the outside air. Once safely inside, find out more details about the emergency\*. **Remain in place** until police, fire, or other emergency response personnel provide additional guidance or tell you it is safe to leave.

\*In both cases, you should seek additional clarifying information by all means possible...Purdue Home page, email alert, TV, radio, etc...review the Purdue Emergency Warning Notification System multi-communication layers at  
[http://www.purdue.edu/ehps/emergency\\_preparedness/warning-system.html](http://www.purdue.edu/ehps/emergency_preparedness/warning-system.html)

### **EMERGENCY RESPONSE PROCEDURES:**

- Review the **Emergency Procedures Guidelines**  
[https://www.purdue.edu/emergency\\_preparedness/flipchart/index.html](https://www.purdue.edu/emergency_preparedness/flipchart/index.html)
- Review the **Building Emergency Plan** (available from the building deputy) for:
  - o evacuation routes, exit points, and emergency assembly area
  - o when and how to evacuate the building.
  - o shelter in place procedures and locations
  - o additional building specific procedures and requirements.

### **EMERGENCY PREPAREDNESS AWARENESS VIDEOS**

- "Shots Fired on Campus: When Lightning Strikes," is a 20-minute active shooter awareness video that illustrates what to look for and how to prepare and react to this type

of incident. See: <http://www.purdue.edu/securePurdue/news/2010/emergency-preparedness-shots-fired-on-campus-video.cfm> (Link is also located on the EP website)

#### **MORE INFORMATION**

Reference the Emergency Preparedness web site for additional information:  
[http://www.purdue.edu/emergency\\_preparedness](http://www.purdue.edu/emergency_preparedness)

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#### **Intellectual Property (IP)**

For concerns about IP, including IP resulting from student participation in course assignments, see Purdue [University's Policy VIII.4.1, Intellectual Property](#)

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#### **Minor**

An engineering/technical graphics minor focused on product lifecycle management (PLM) is available from The Department of Computer Graphics Technology.

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#### **Acknowledgement of Course Policies**

I have read and understood all aspects of the CGT 163 syllabus and my expectations to be successful in CGT 163 and agree to adhere to them.

Last & First Names (Printed in ink)	Signature (Signed in ink)	Date	Assignment #
----------------------------------------	------------------------------	------	--------------

# Notebook Assignment Information Page

Thursday, July 09, 2015  
12:05 PM



CGT\_163\_N  
otebook\_S...

**CGT 163: Graphical Communication and Spatial Analysis**  
*Summer 2015 Notebook Check*

*Portfolio*

The outcome of this requirement is a digital portfolio of your engineering/technical graphics work to use for internship, co-op, and permanent professional positions. The goal is to allow you to show possible employers actual engineering/technical graphics experience using both freehand sketching and CAD technologies.

*Notebook Requirements*

The following is required to receive full credit:

- The notebook has to be completed in **Microsoft OneNote**. The assignments need to be scanned and inserted in the direction the sketches/CAD have been created. Isometric sketches need to be inserted in portrait view, while orthographic (multi-view) sketches need to be inserted in landscape view (Make sure to revise the sketches if you haven't sketched them in landscape orientation).
- You need 5 section tabs in Microsoft OneNote.
- The following sections are needed:
  - Cover page
    - Engineering/Technical Graphics (must be computer typed and not freehand)
    - Your name (first, last) [must be computer typed and not freehand]
    - Freehand or CAD illustration of your choice
  - General Information
    - Syllabus
    - Notebook Assignment Information page (This page)
  - Laboratory Preparations
    - Complete (if you missed any then you need to get the notes from a classmate and recopy them)
      - LP01
      - LP03
      - LP04
      - Up to the date of the notebook check
  - Assignments in the order that they were assigned.
    - Must all read from the same direction so that the pages do not need to be rotated.
    - CAD assignments:
      - Full page print
      - Isometric view
      - Specification tree/model browser needs to be expanded to the sketch level for each appropriate feature
  - Quizzes
    - From Q01 to the last quiz that was submitted/handed back by your TA.
- **Submission Requirements**
  - Due on July 10<sup>th</sup>, 2015.

**EVERY ASSIGNMENT, LABORATORY PREPARATION, QUIZ, SYLLABUS, AND THE DIGITAL PORTFOLIO REQUIREMENTS HAVE TO BE INCLUDED TILL DATE. IF YOU MISS OUT ON 1-5 OF THE REQUIREMENTS ON THE NOTEBOOK, YOU WILL GET HALF CREDIT. IF YOU MISS MORE THAN 5 OF THE REQUIREMENTS, YOU WILL NOT RECEIVE ANY CREDIT FOR THE NOTEBOOK.**

# Laboratory Prep 1

Thursday, July 09, 2015

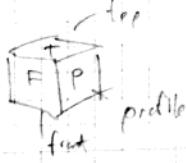
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Name: Egley, Bryce

Assignment #: OILP01

Date: 6/15/15

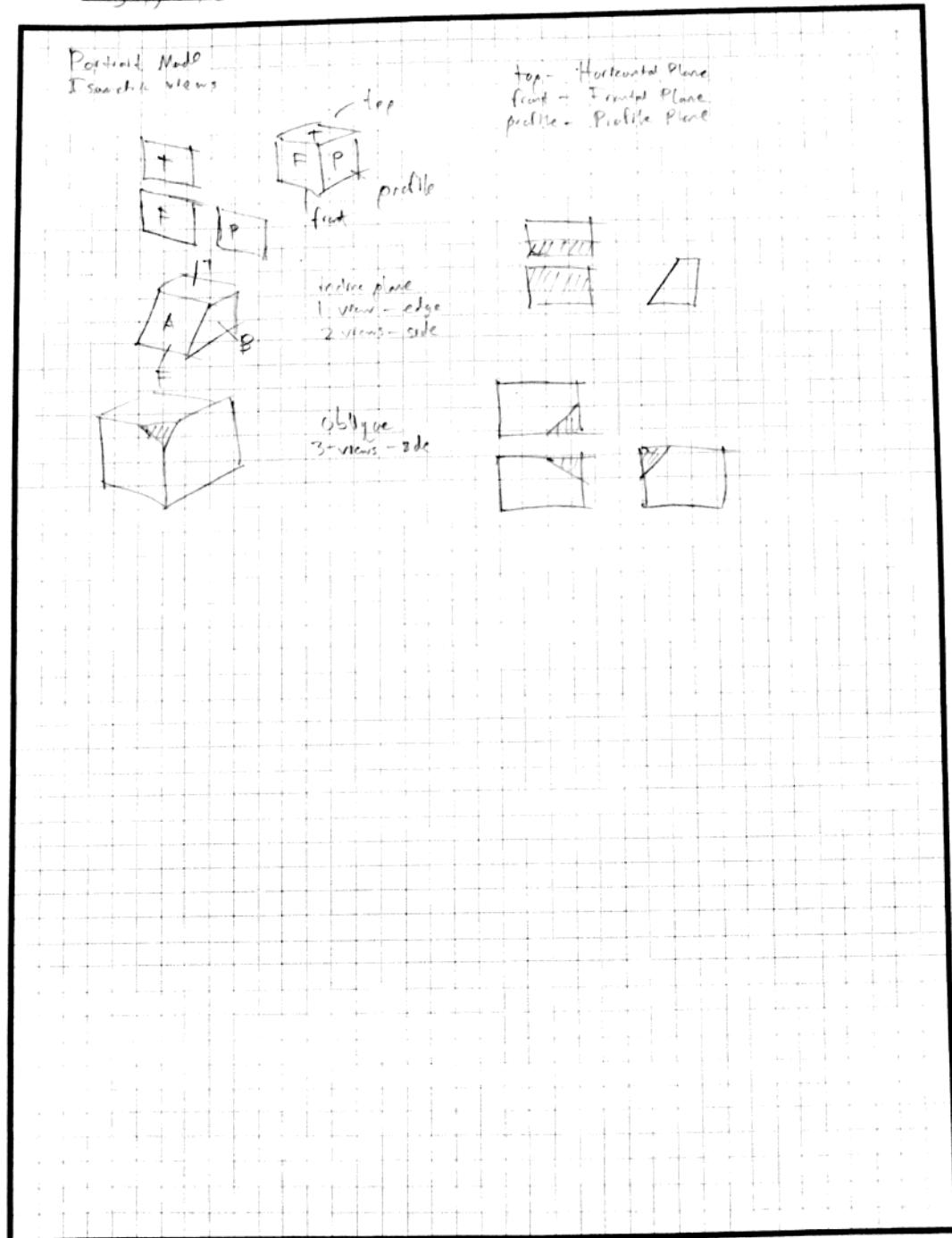
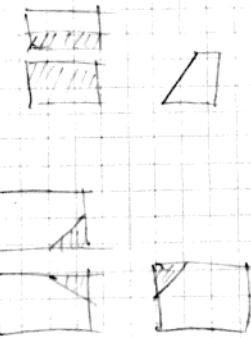
Orthographic Mode  
Isometric views



isometric plane  
1 view - edge  
2 views - side

Ortho view  
3 views - 2d

top - Horizontal Plane  
front - Frontal Plane  
profile - Profile Plane



# Laboratory Prep 2

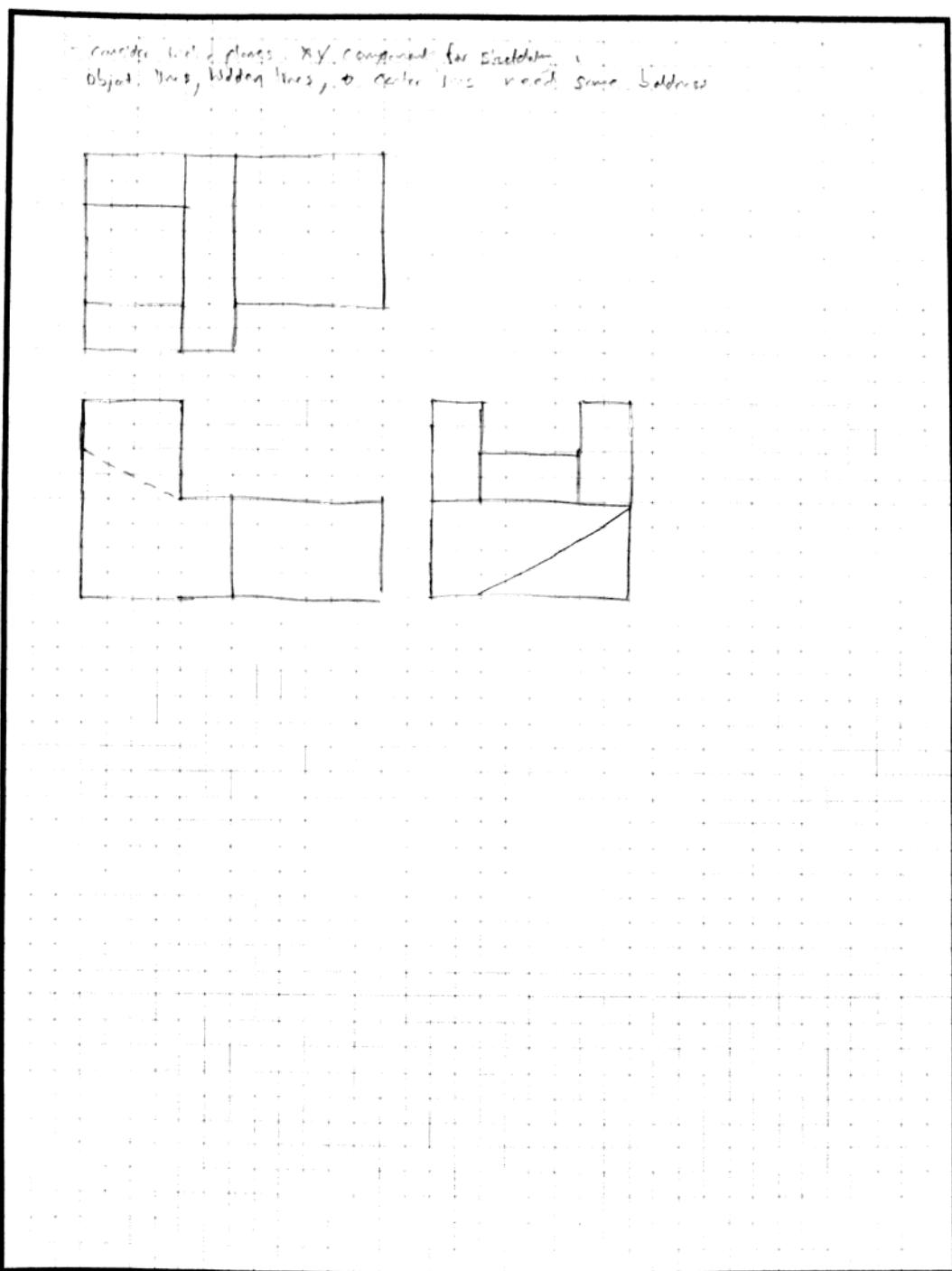
Thursday, July 09, 2015

11:54 AM

Name: Egley, Bryce

Assignment #: ULLP02

Date: 6-16-15



# Laboratory Prep 3

Thursday, July 09, 2015

11:54 AM

Name: Egle, Bryce

Assignment #: 91LPCB10

Date: 6/17/15

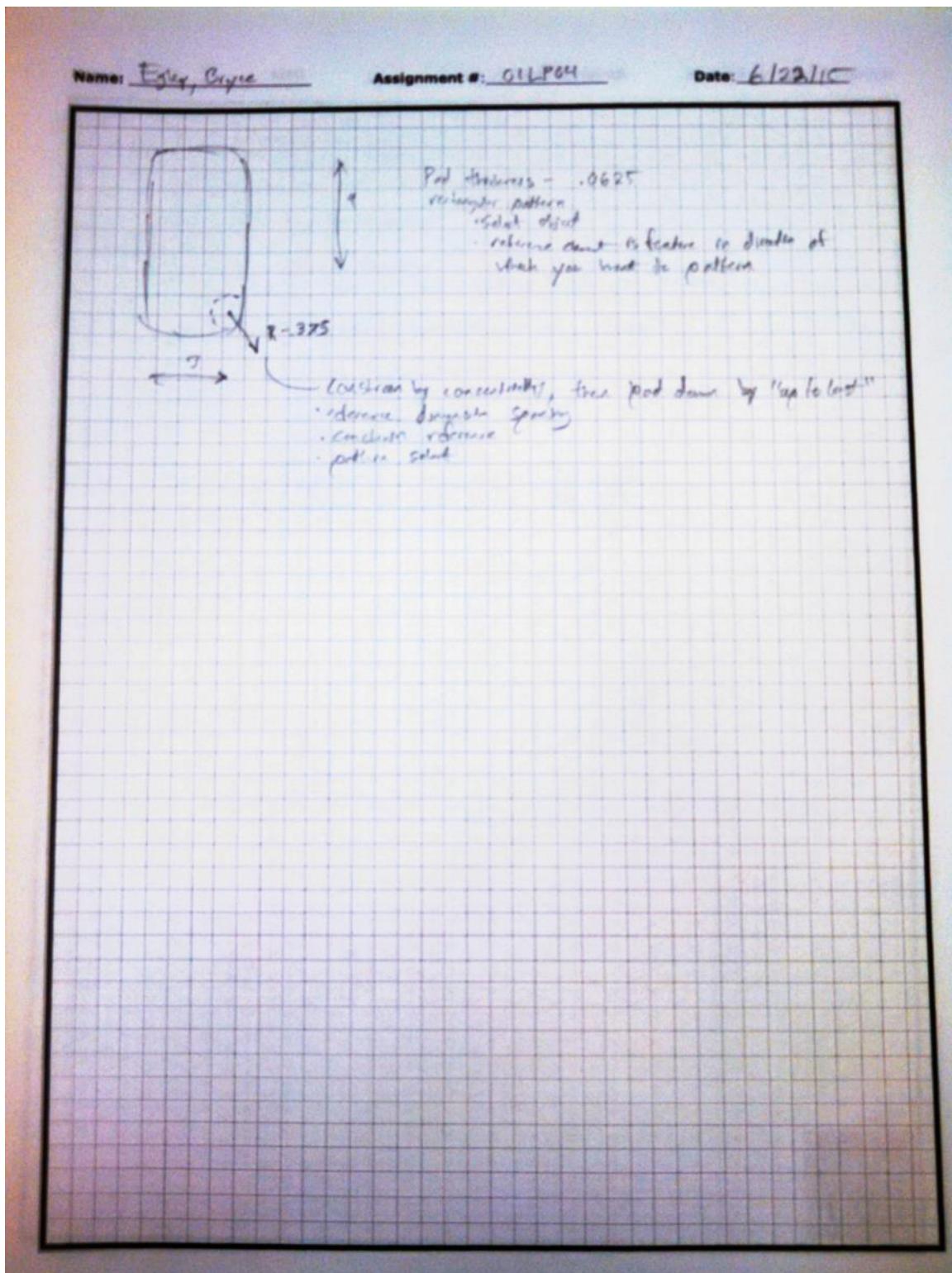
Customize → Restore All Toolbars (close if decided to close)  
Process  
1. Choose any plane and select Sketch command  
\* Sketch toolbar has option to turn off  
- Snap to point → prevents free motion of cursor  
\* Standard will be taken  
↳ Change units in tools → settings → general → precision & measurement units  
\* Left click → sketch option → change sketch supports  
↳ Change plane  
2. Outline shape  
3. Pod shape  
\* Shift → creates profile around ends  
\* Rotate using mouse → click on middle mouse button and left mouse button simultaneously and rotate  
- Select plane → sketch option → click command  
\* Sketch is green → completely constrained  
purple → over constrained  
red → fucked up

\* Trim command (Operations toolbar)

# Laboratory Prep 4

Thursday, July 09, 2015

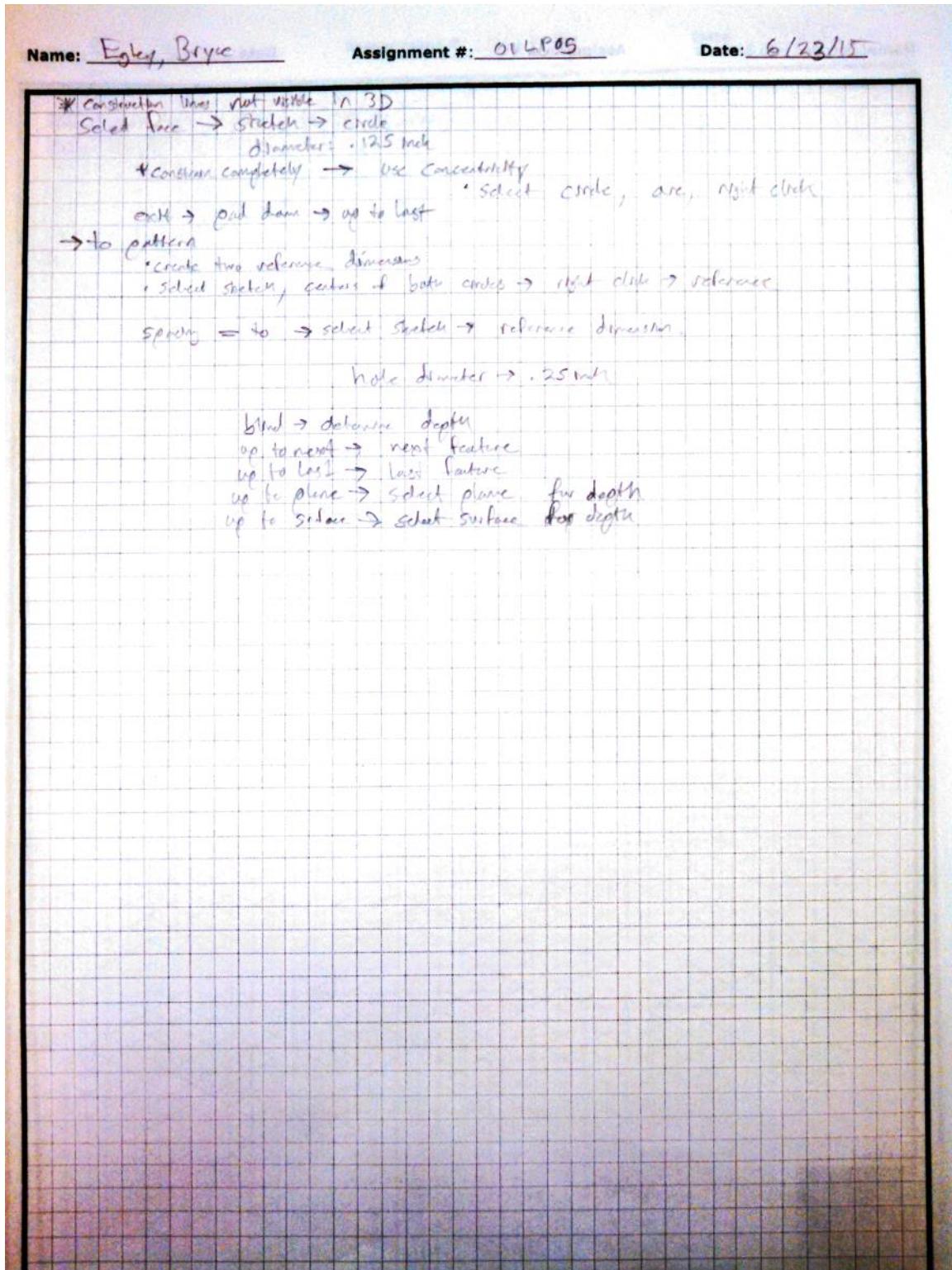
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# Laboratory Prep 5

Thursday, July 09, 2015

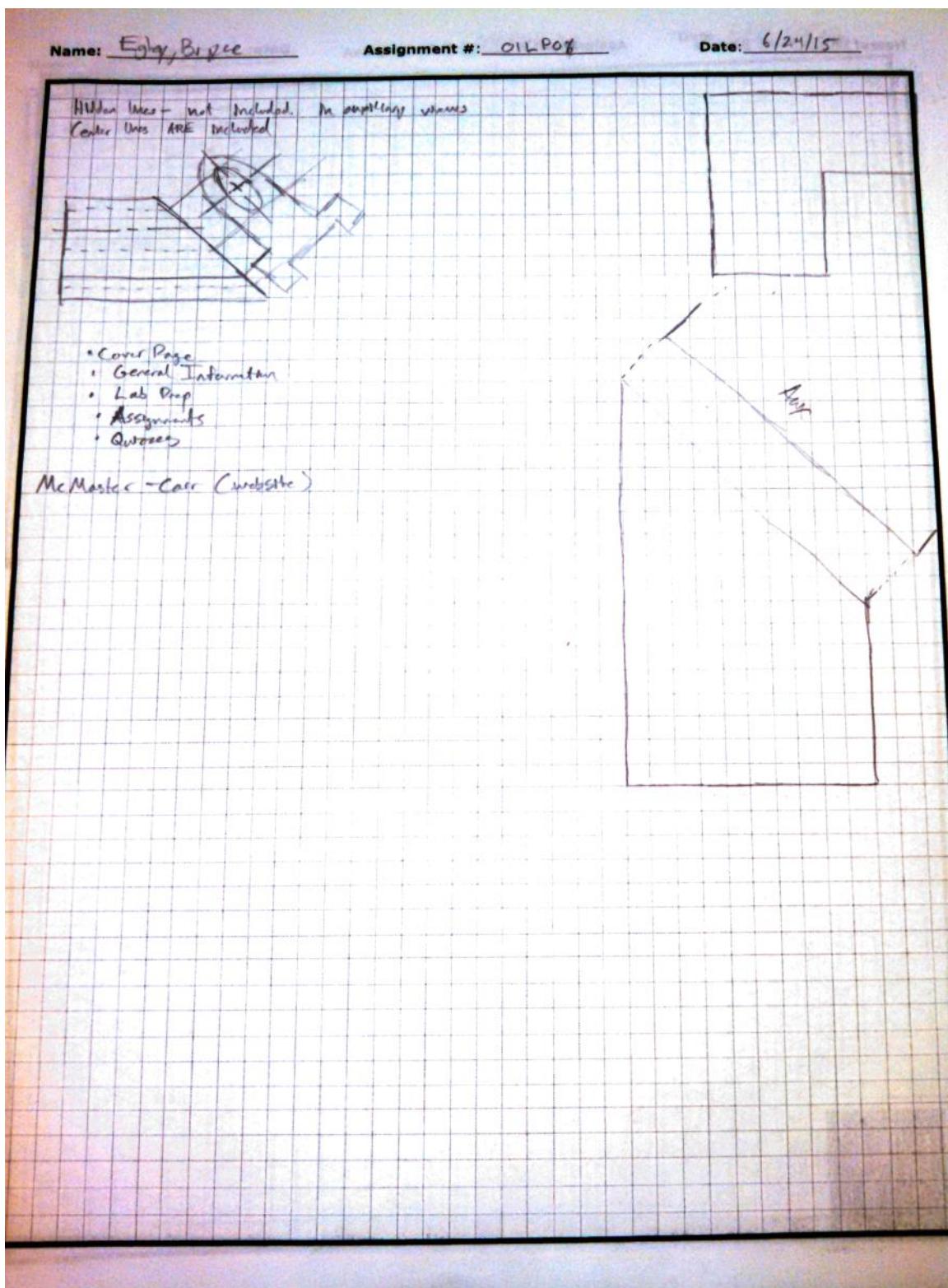
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# Laboratory Prep 6

Thursday, July 09, 2015

11:54 AM



# Laboratory Prep 7

Thursday, July 09, 2015

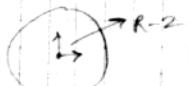
11:54 AM

Name: Egley, Bryce

Assignment #: 01L07

Date: 6/25/15

- Inputs, pickle place to start



- Horizontal:



↳ Considered to

vertical lines

\* tangent to H- holes

- Orth, create plane  
parallel to front  
Ortho on plane

- multi-section solid

↳ Select both circles

\* clearly points must point to each other

\* removed multi-section Solid, make sure directions  
are matching

# Laboratory Prep 8

Thursday, July 09, 2015

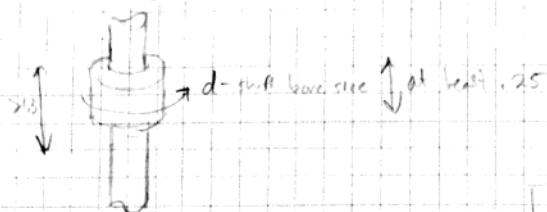
11:54 AM

Name: Eglev, Bryce

Assignment #: LP08

Date: 7/1/15

Bisc - no dimensions, bracket just needs to clamp on  
Shelf -> greater height than cylinder.



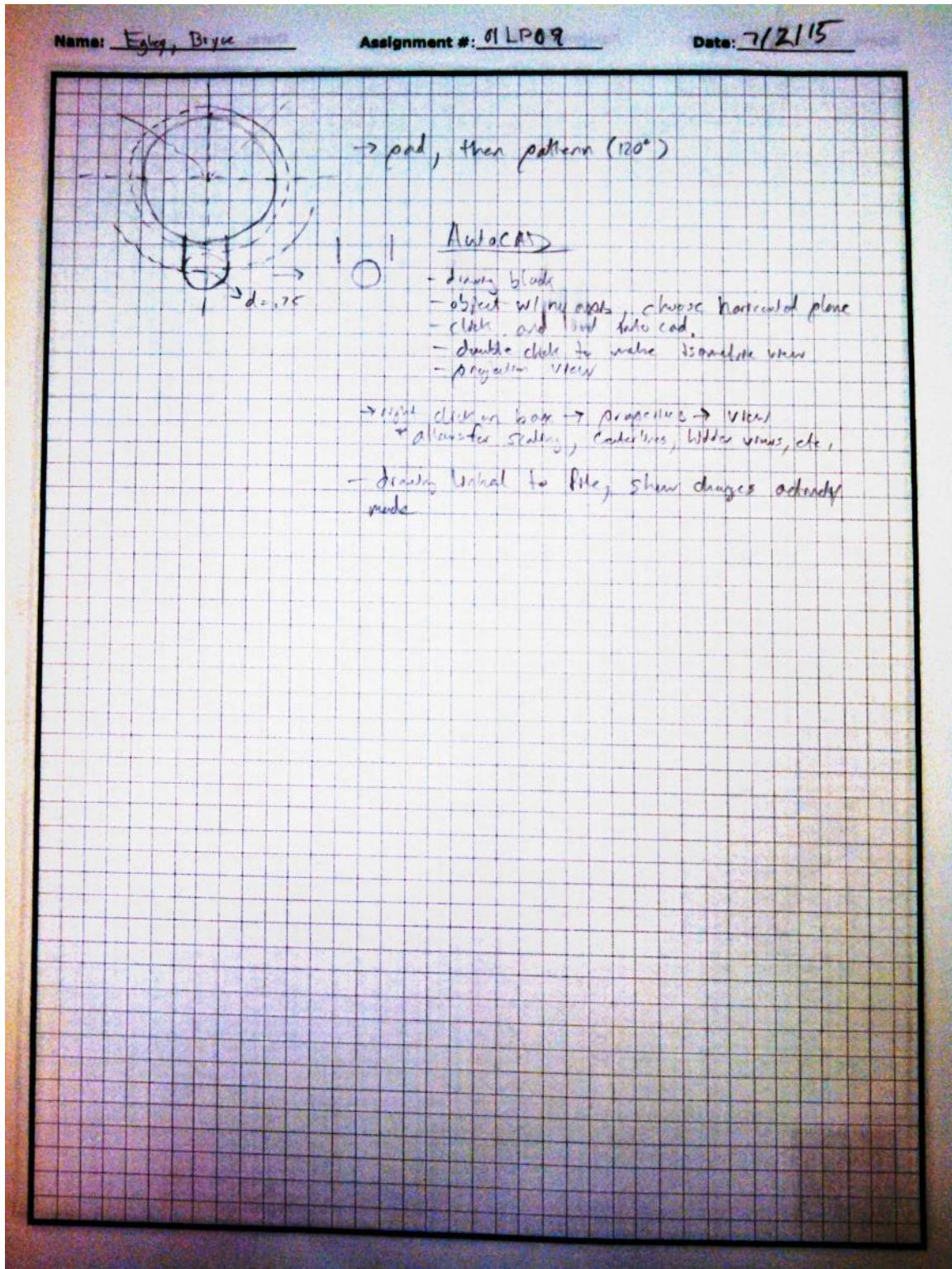
Create Assembly  
- download appropriate 3d step file  
- files will be in same folder



- exactly component → click on product in product view
- stick tool onto object to move in assembly
- Constraint, mates, other faces

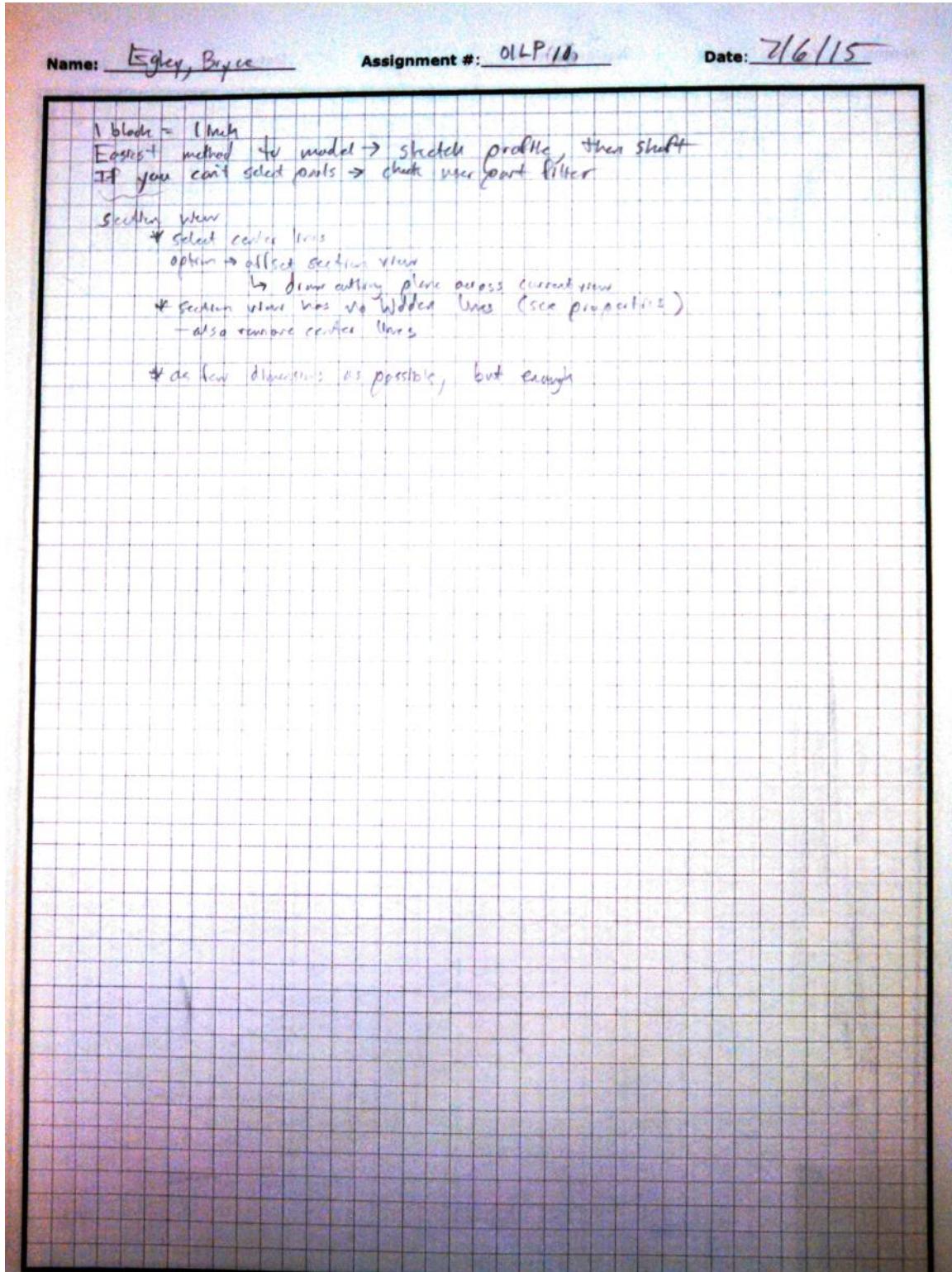
# Laboratory Prep 9

Thursday, July 09, 2015  
11:54 AM



# Laboratory Prep 10

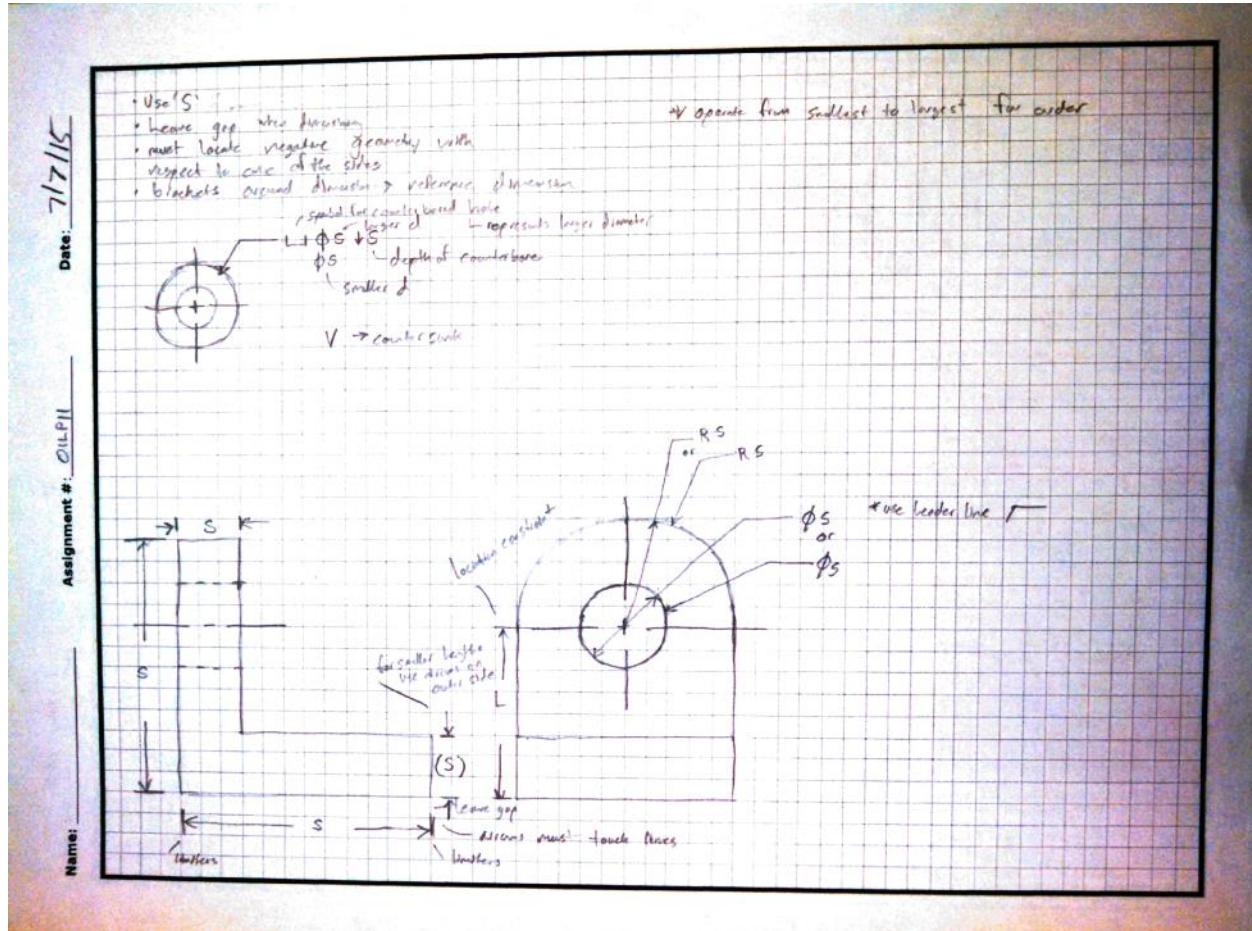
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# Laboratory Prep 11

Thursday, July 09, 2015

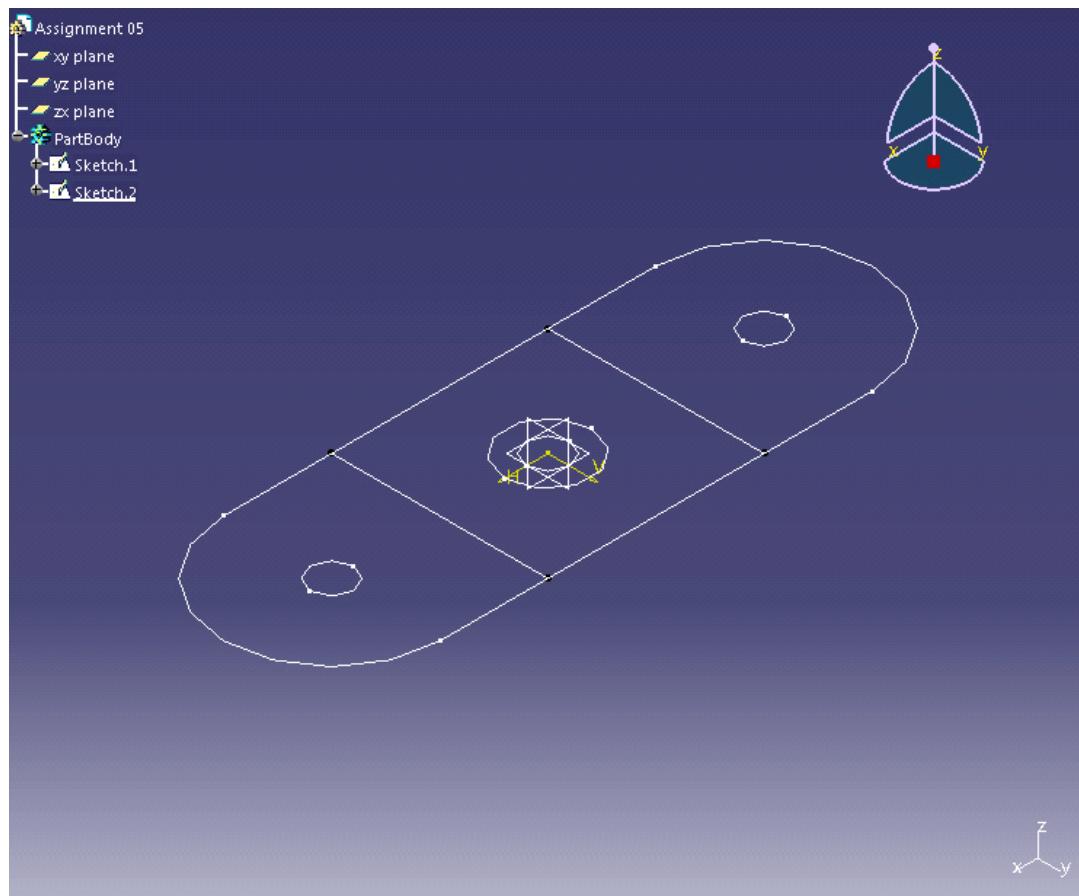
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# Assignment 05

Thursday, July 09, 2015

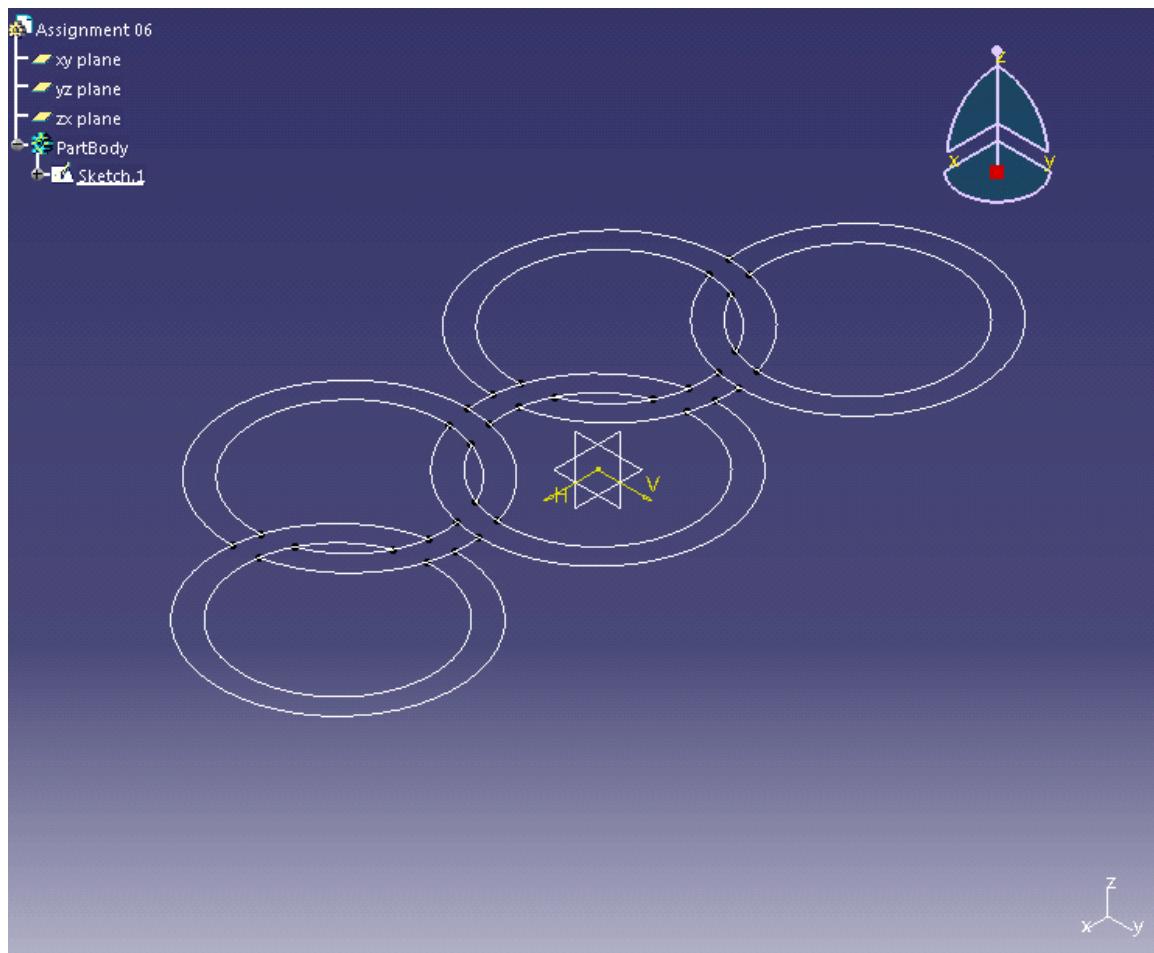
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# Assignment 06

Thursday, July 09, 2015

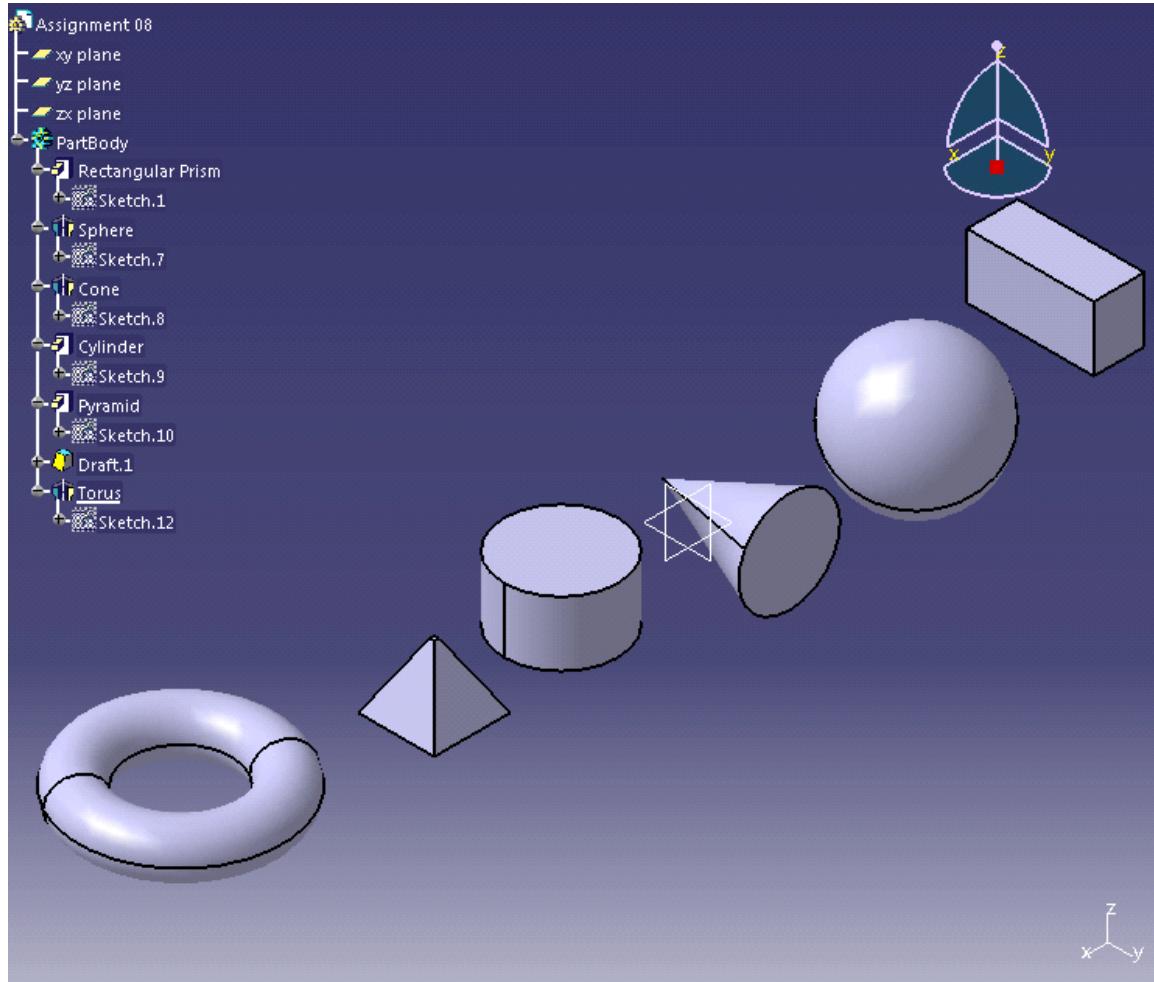
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# Assignment 07

Thursday, July 09, 2015

11:26 AM



# Assignment 08

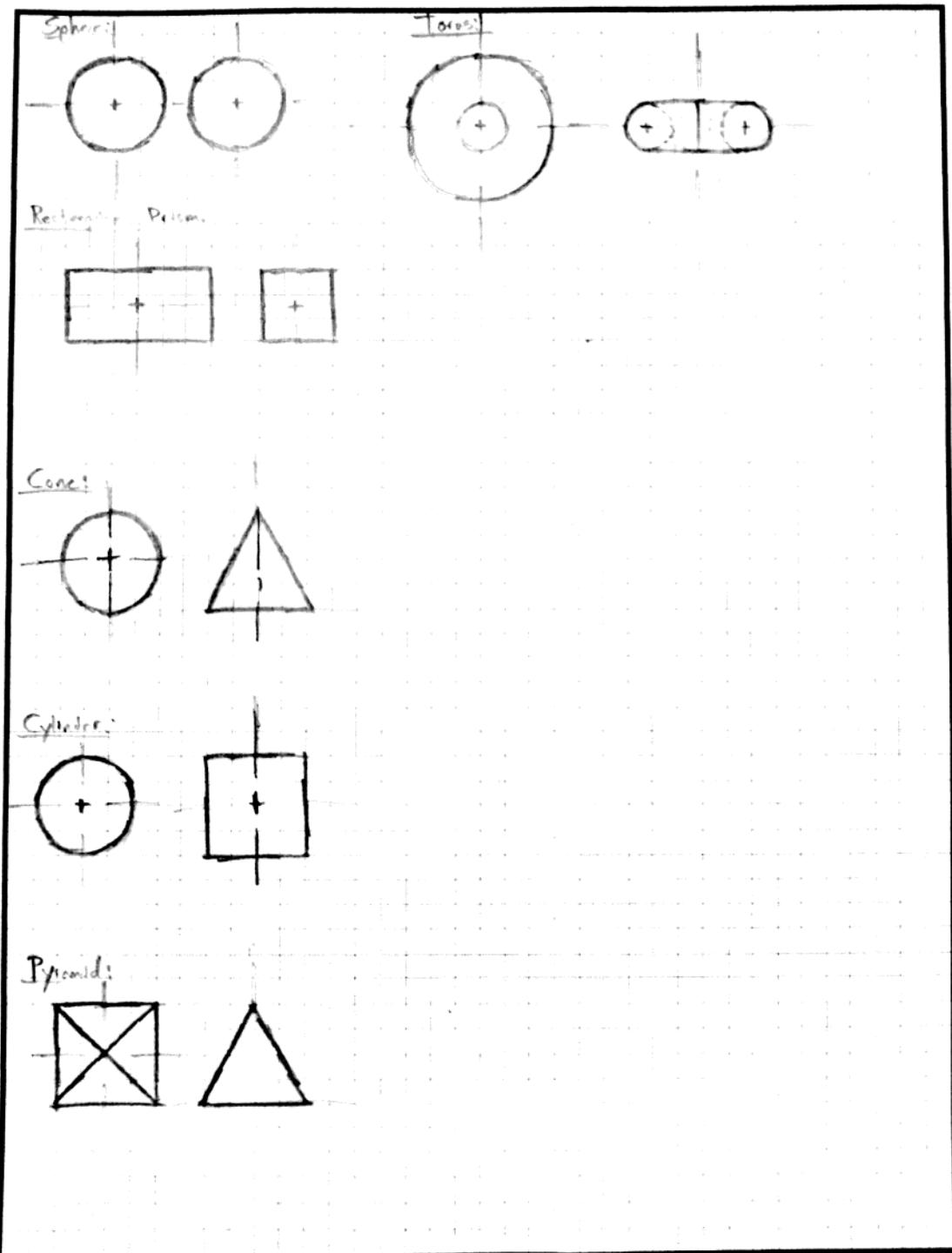
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Name: Egley, Bryce

Assignment #: 010710 q

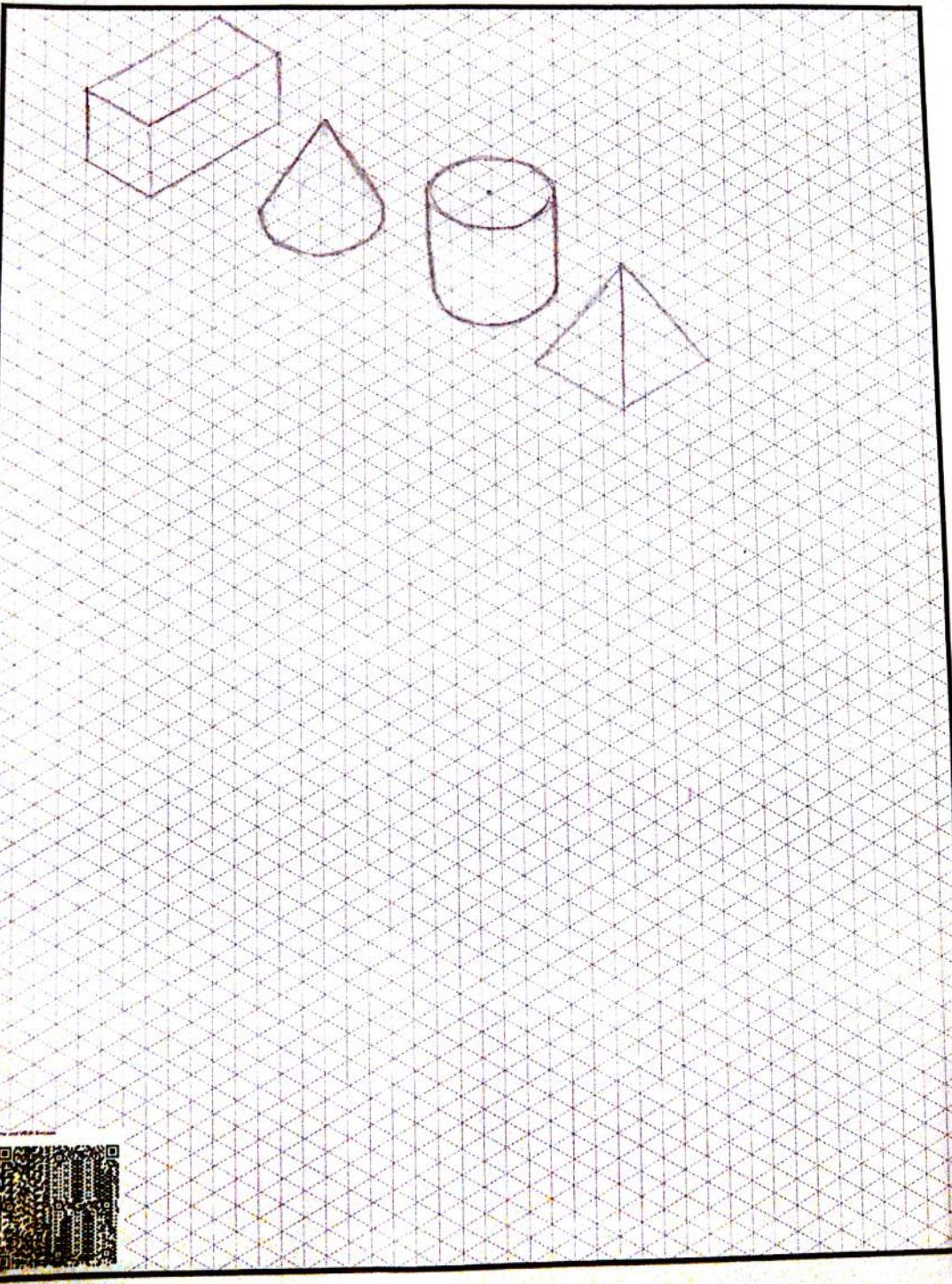
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Assignment #: 07

Date: 6/16/15



# Assignment 09

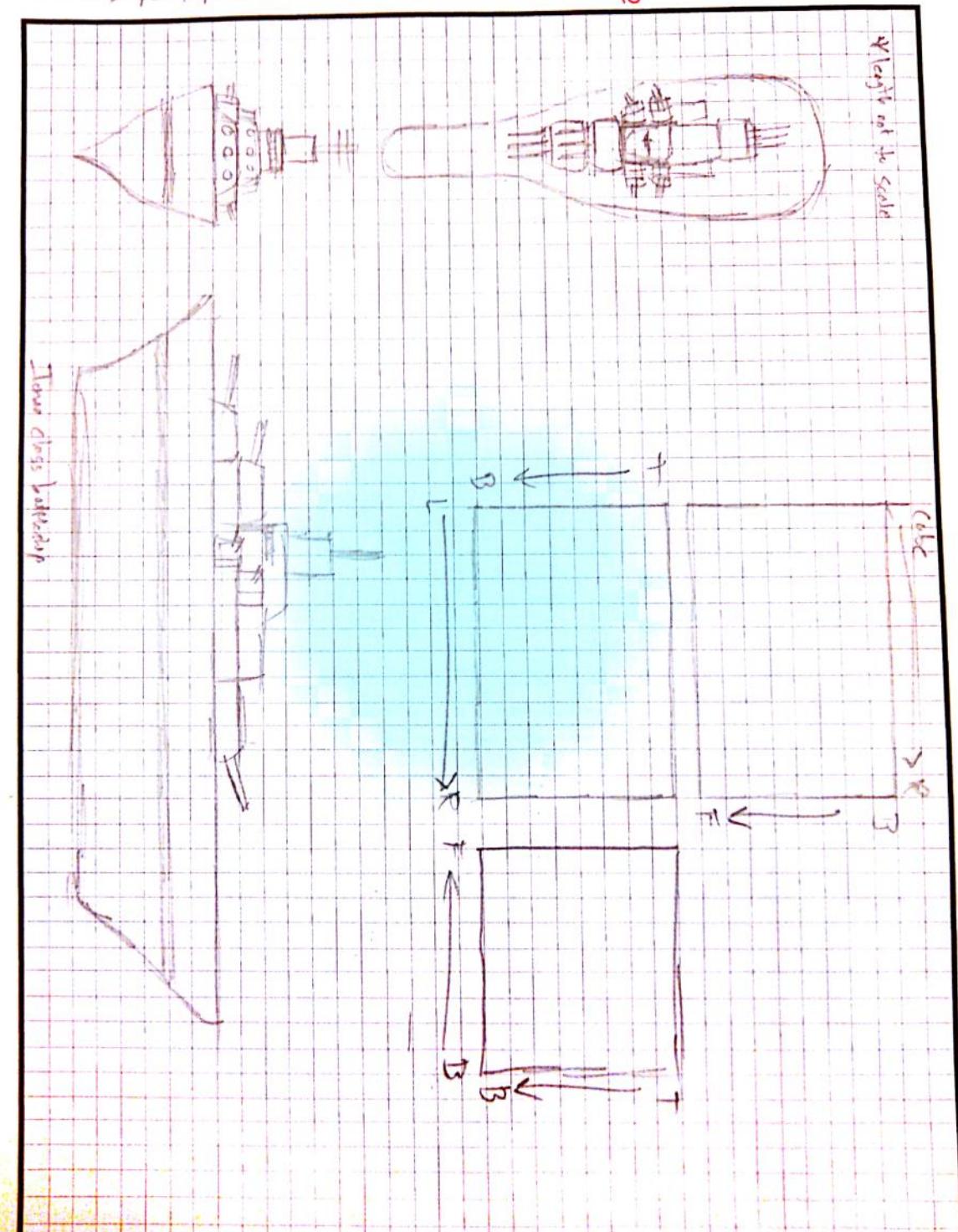
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Name: Egley, Bryce

**Assignment #:** ~~0101~~ **10**

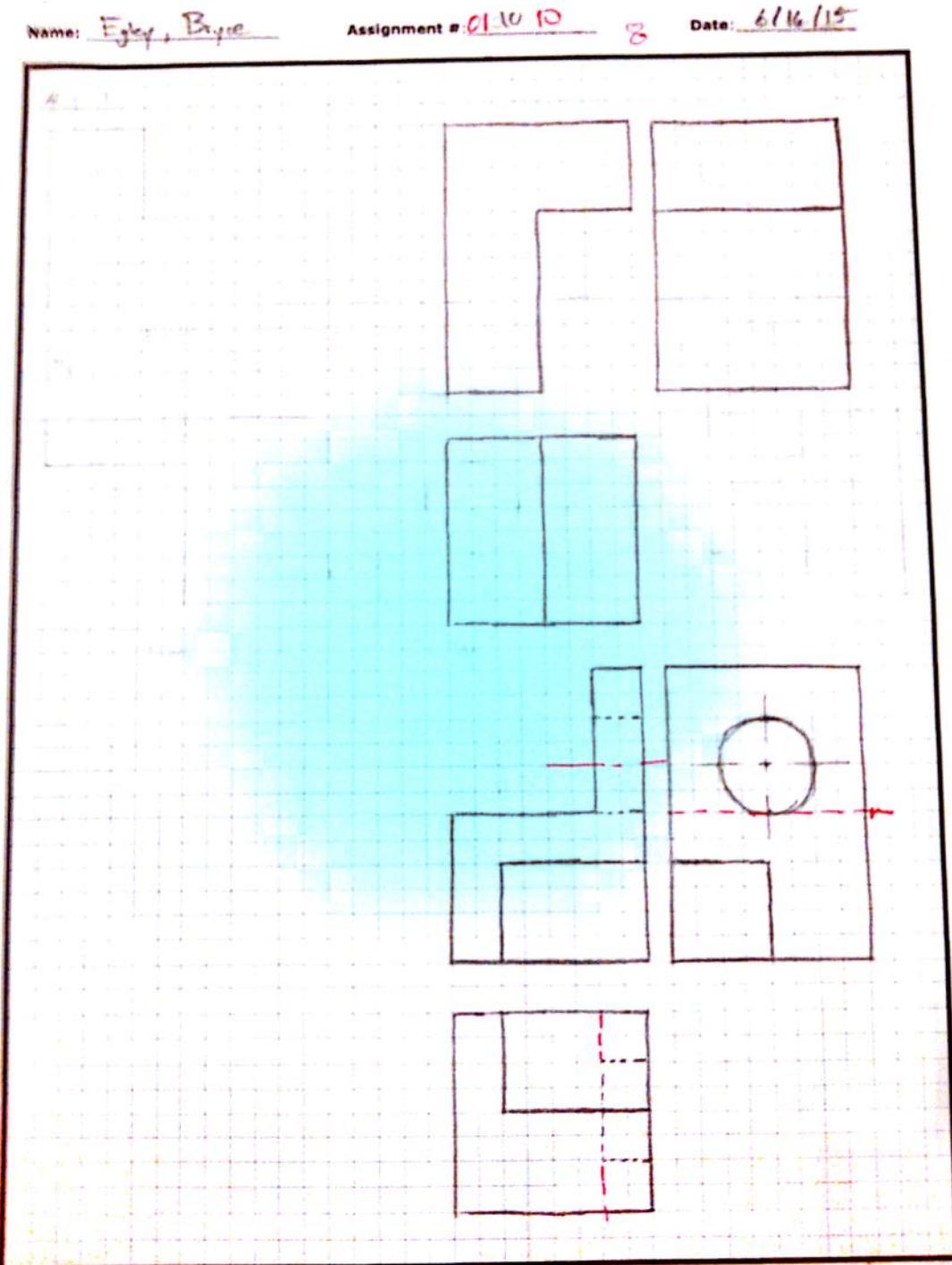
Date: 6/16/15



# Assignment 10

Thursday, July 09, 2015

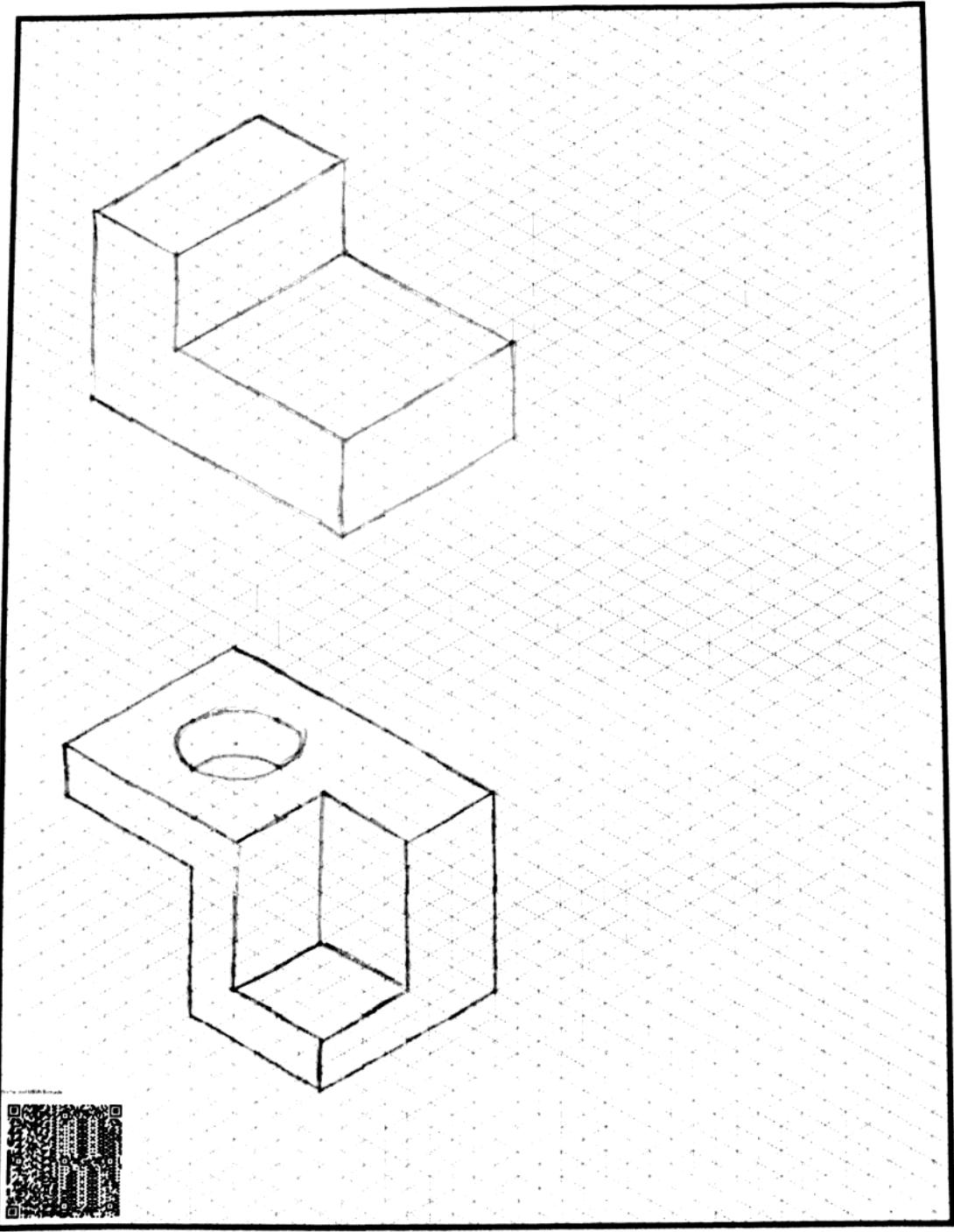
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Assignment #: 10

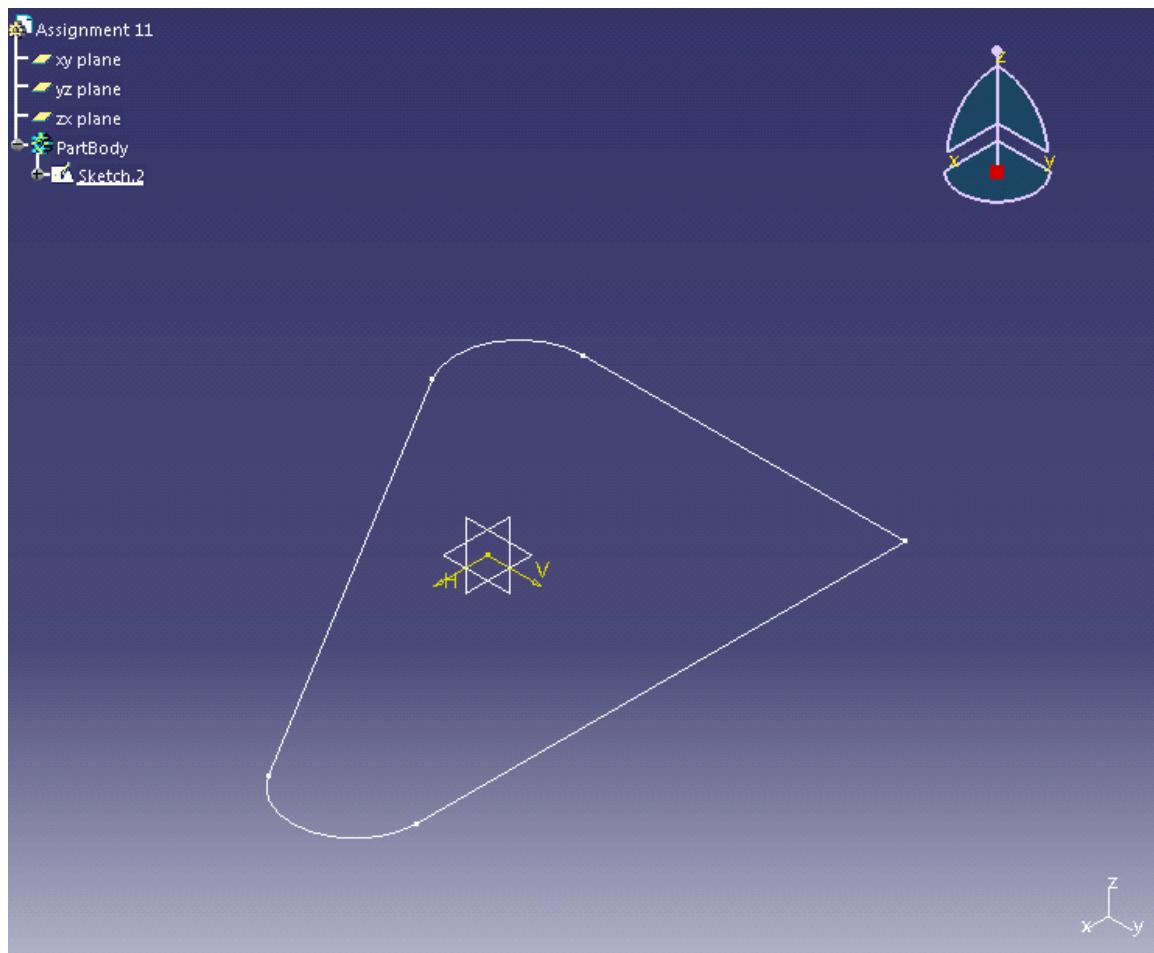
Date: 6/16/15



# Assignment 11

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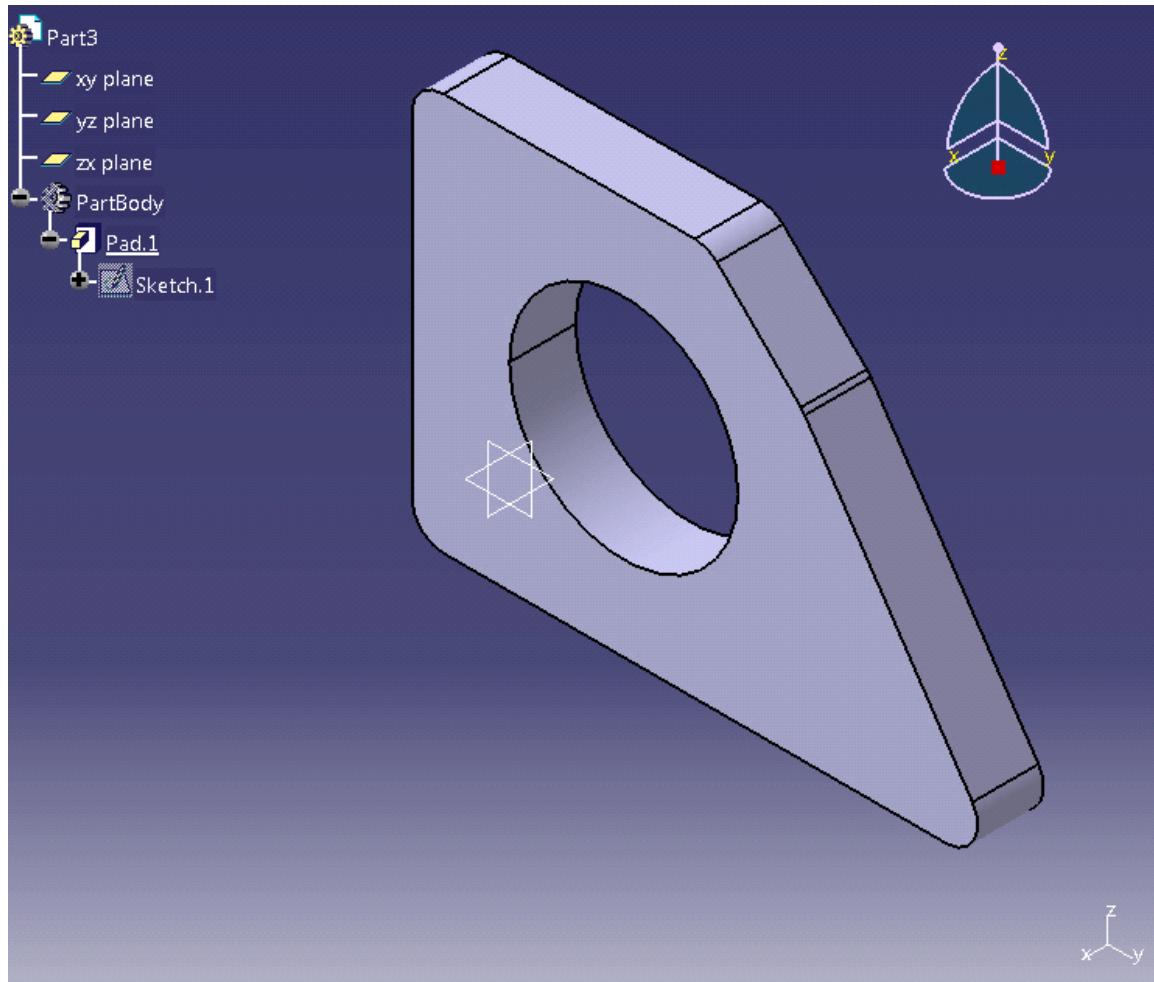
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# Assignment 12

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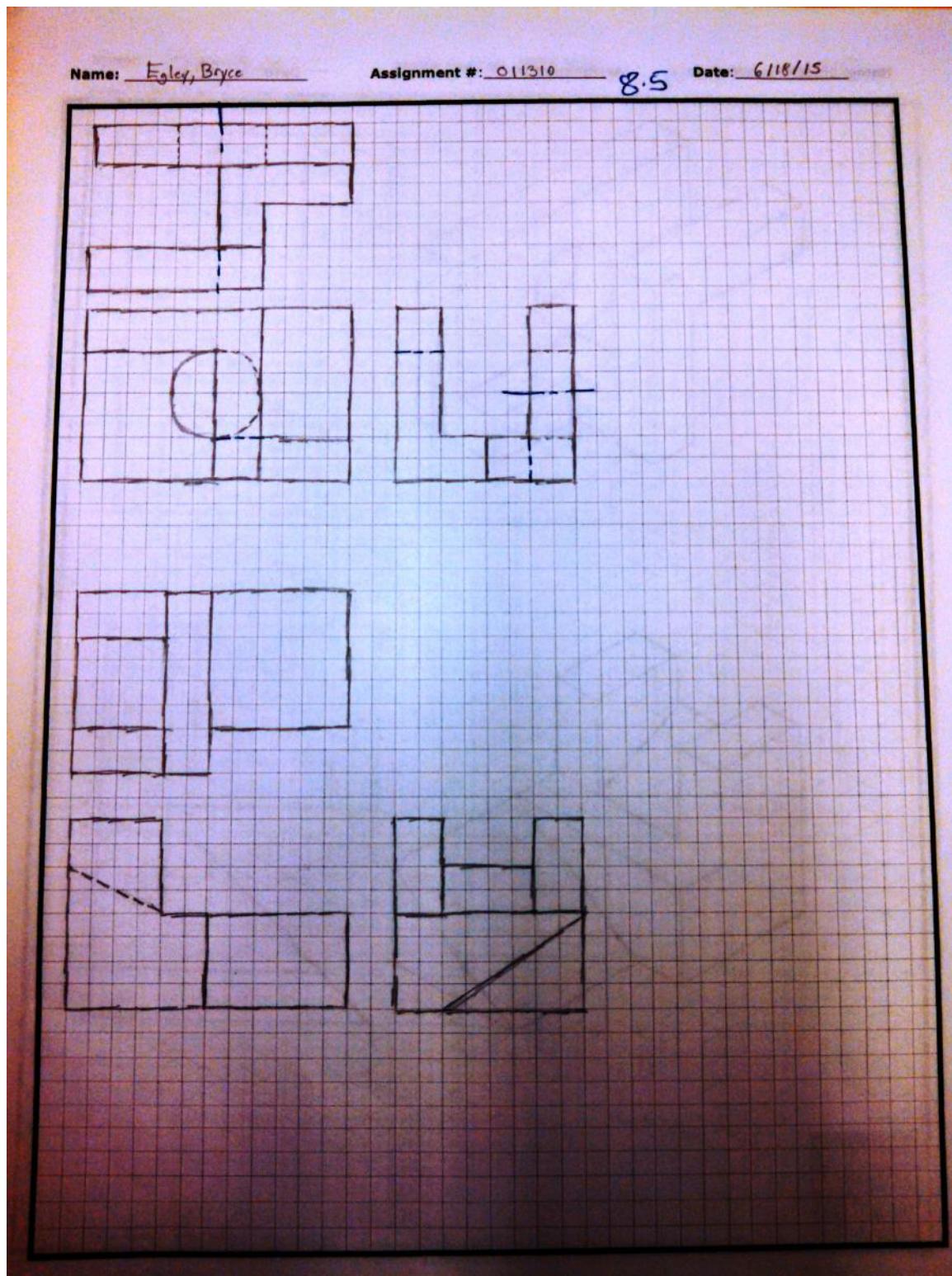
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# Assignment 13

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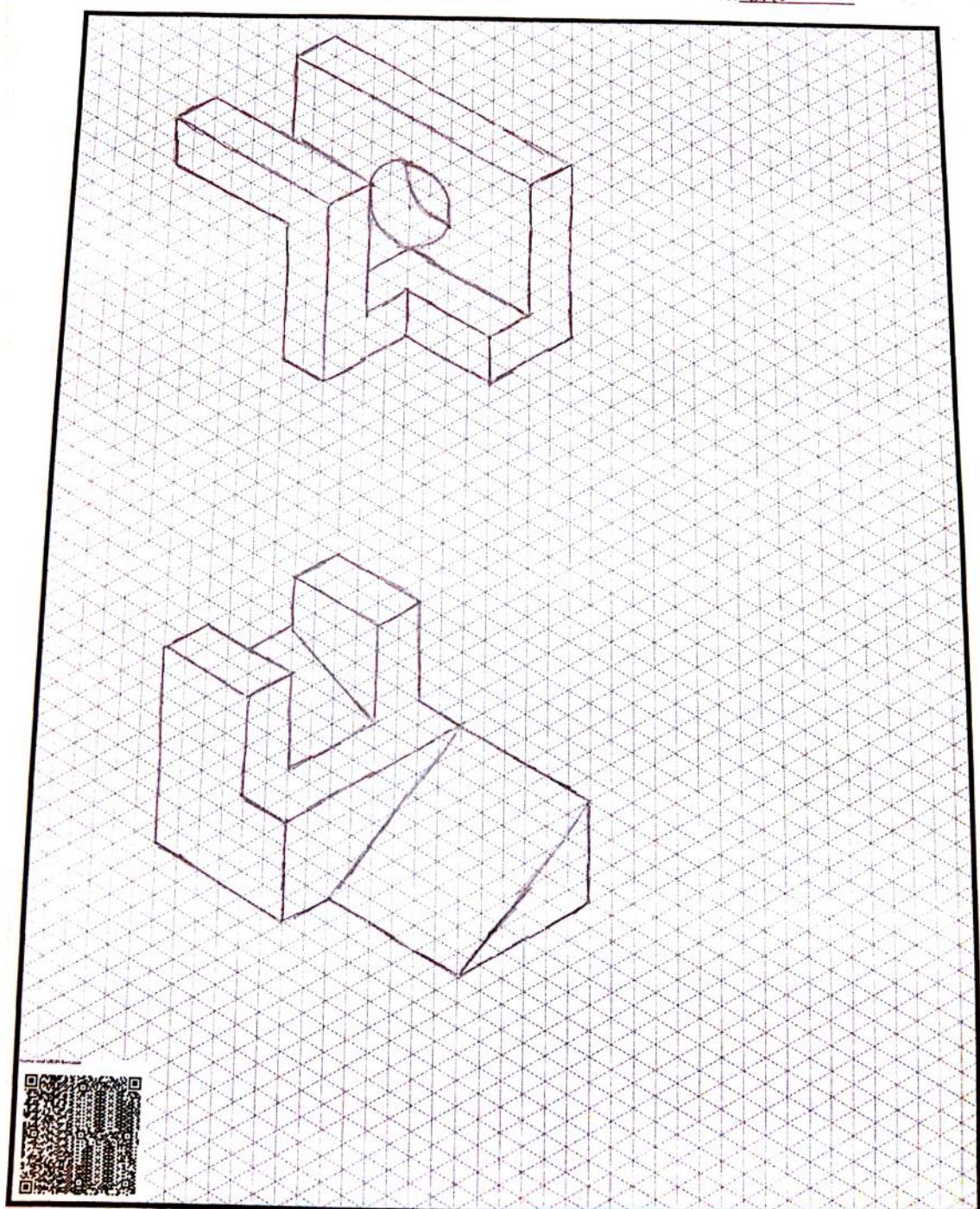
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Name: Encoded into Barcode

Assignment #: \_\_\_\_\_

Date: 6/18/15



# Assignment 14

Thursday, July 09, 2015

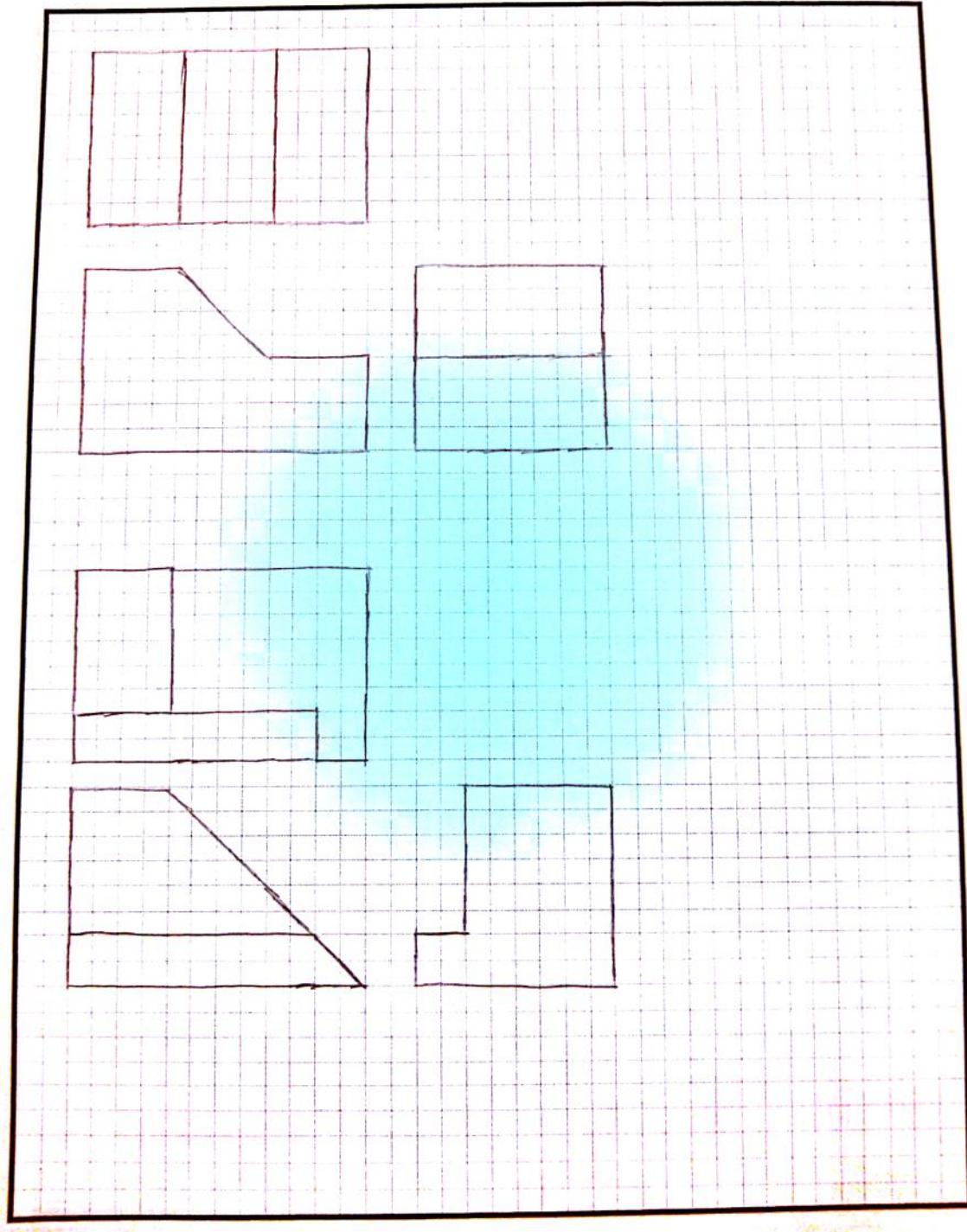
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Name: Egley, Bryce

Assignment #: 011410

10

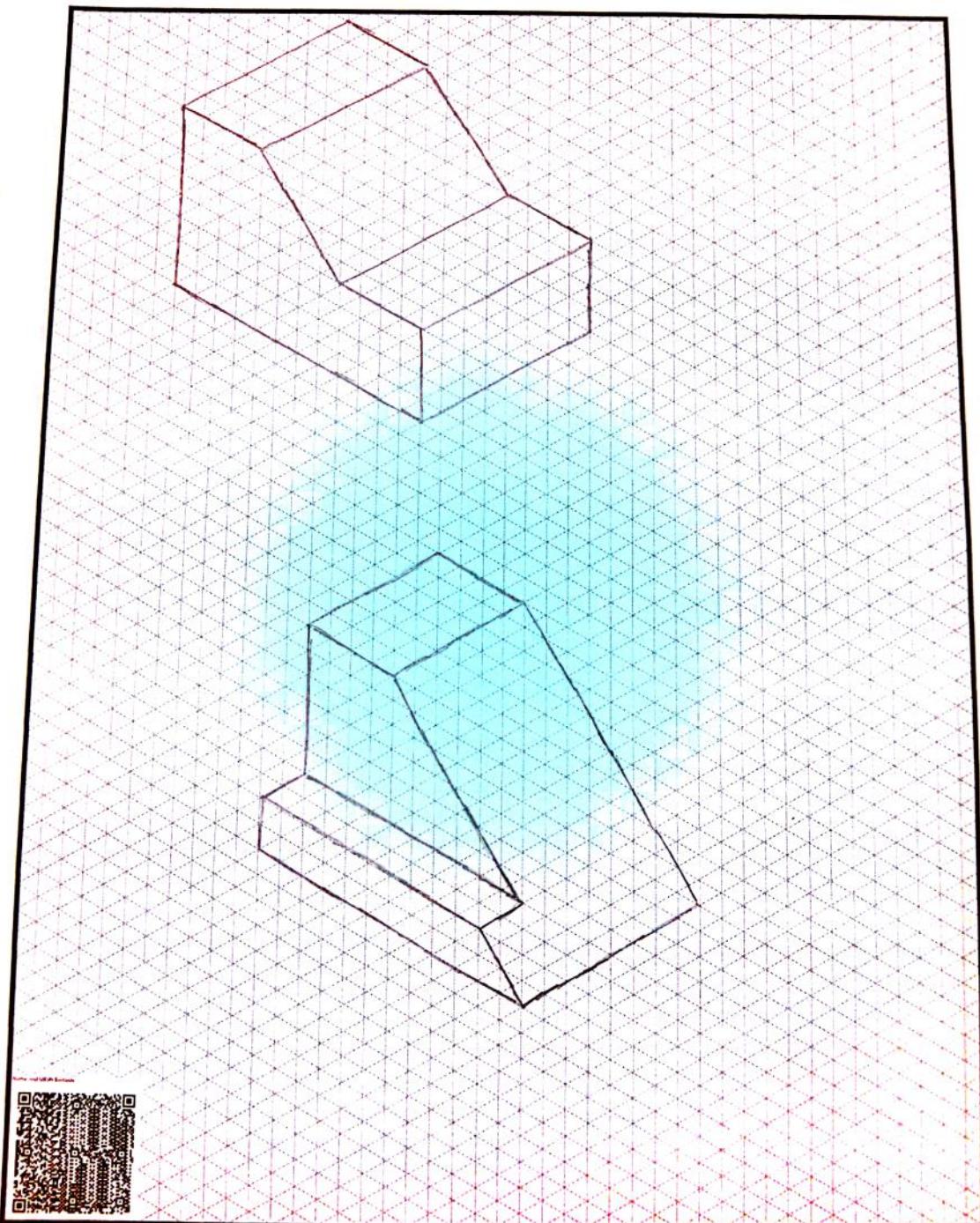
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Name: Encoded into Barcode

Assignment #: \_\_\_\_\_

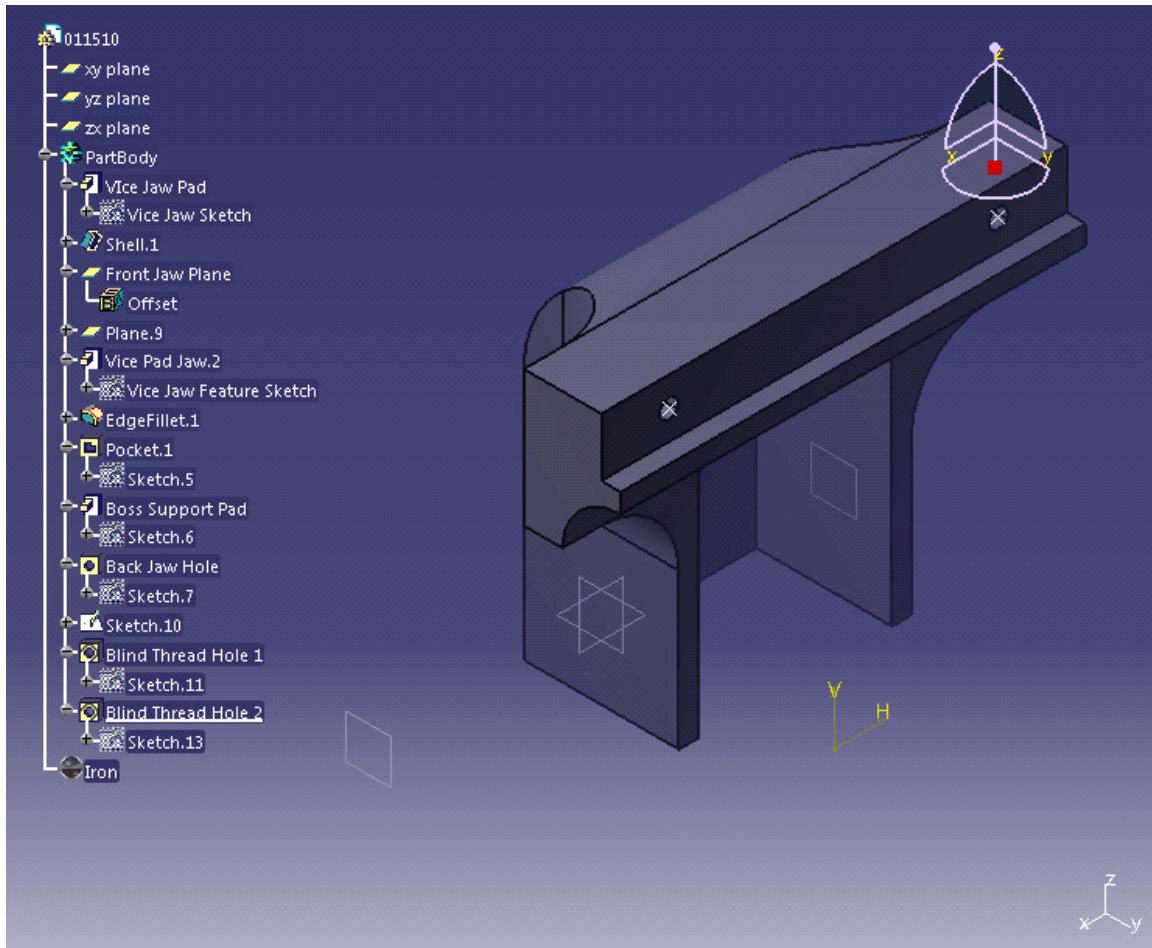
Date: 6/18/15



# Assignment 15

Thursday, July 09, 2015

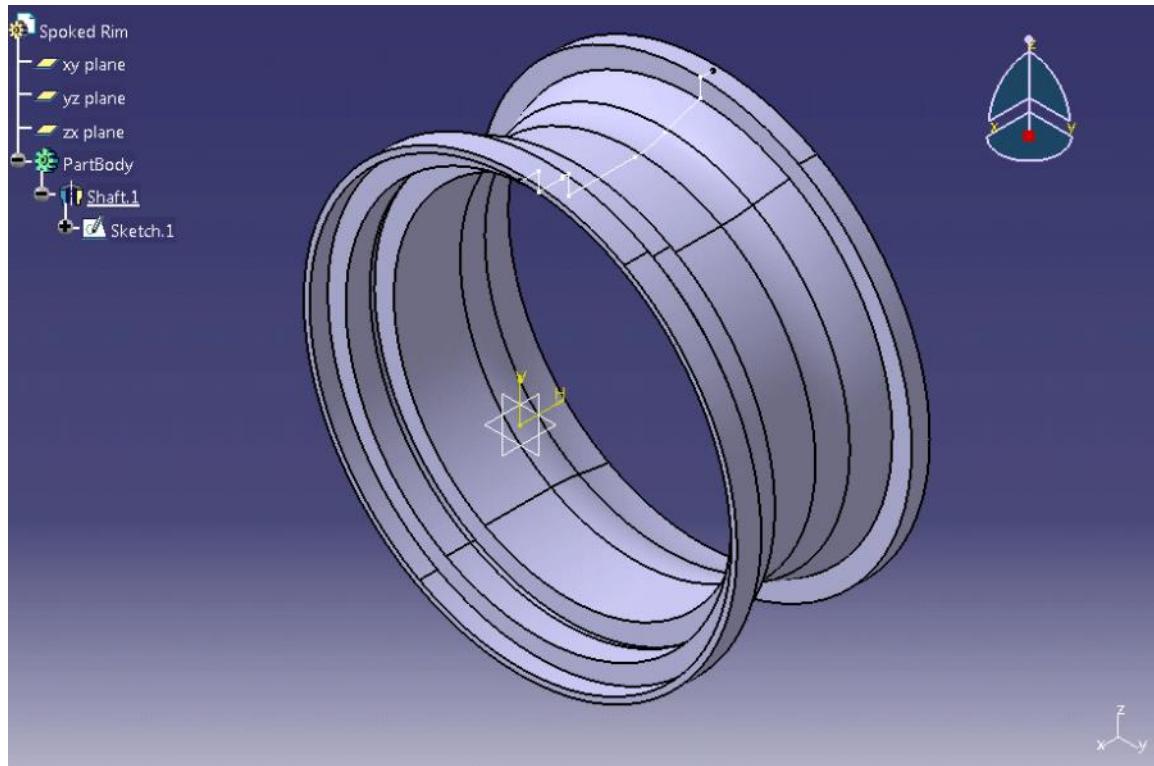
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# Assignment 16

Thursday, July 09, 2015

11:26 AM



# Assignment 17

Thursday, July 09, 2015

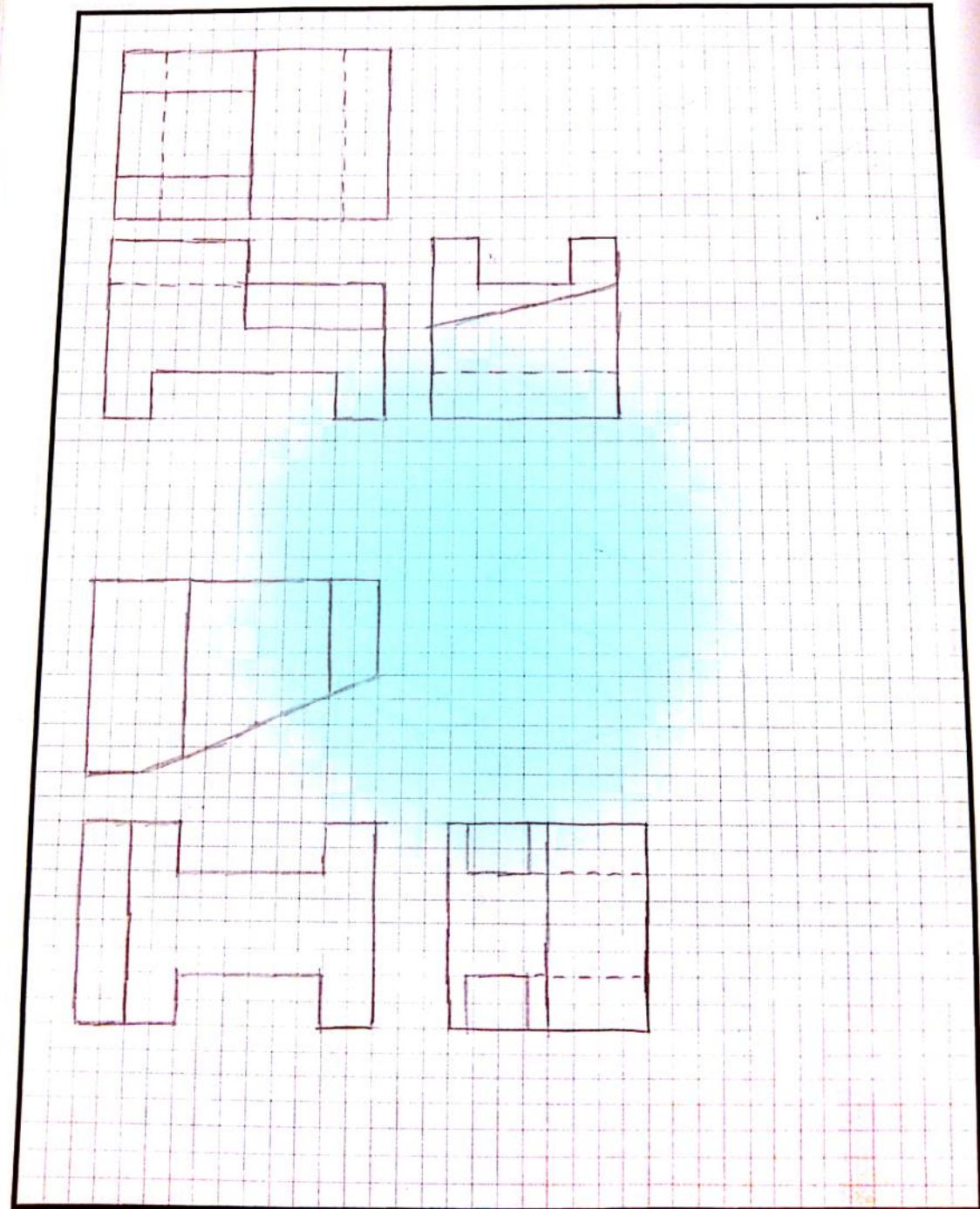
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Name: Egley, Bryce

Assignment #: 011710

Date: 6/23/15

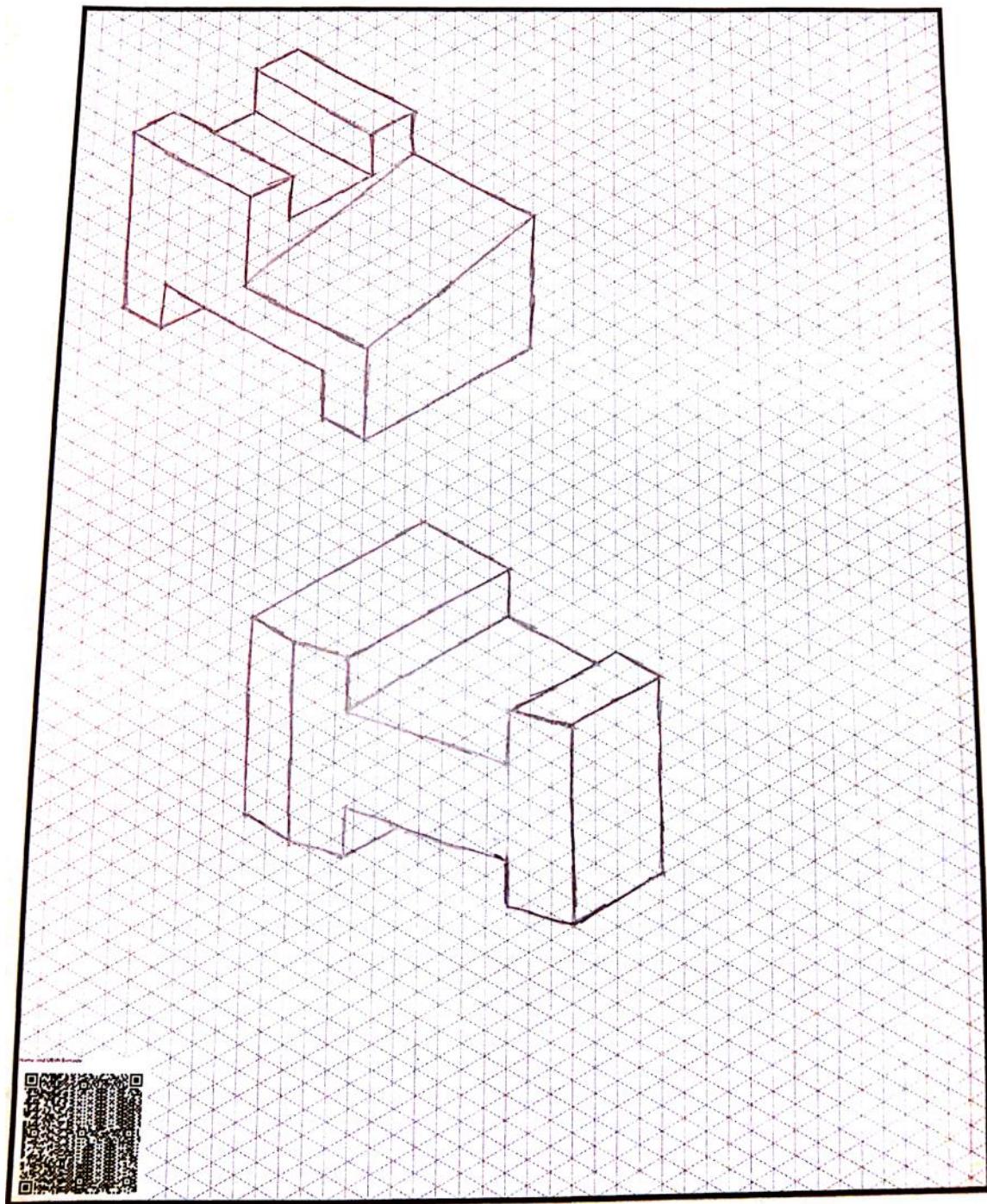
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Name: Encoded into Barcode

Assignment #: \_\_\_\_\_

Date: \_\_\_\_\_



# Assignment 18

Thursday, July 09, 2015

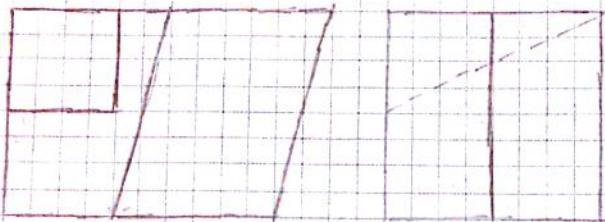
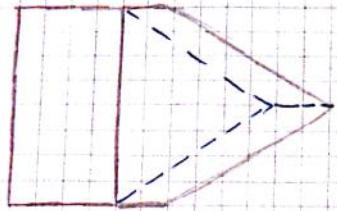
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Name: Egley, Briya

Assignment #: 011810

Date: 6/25/15

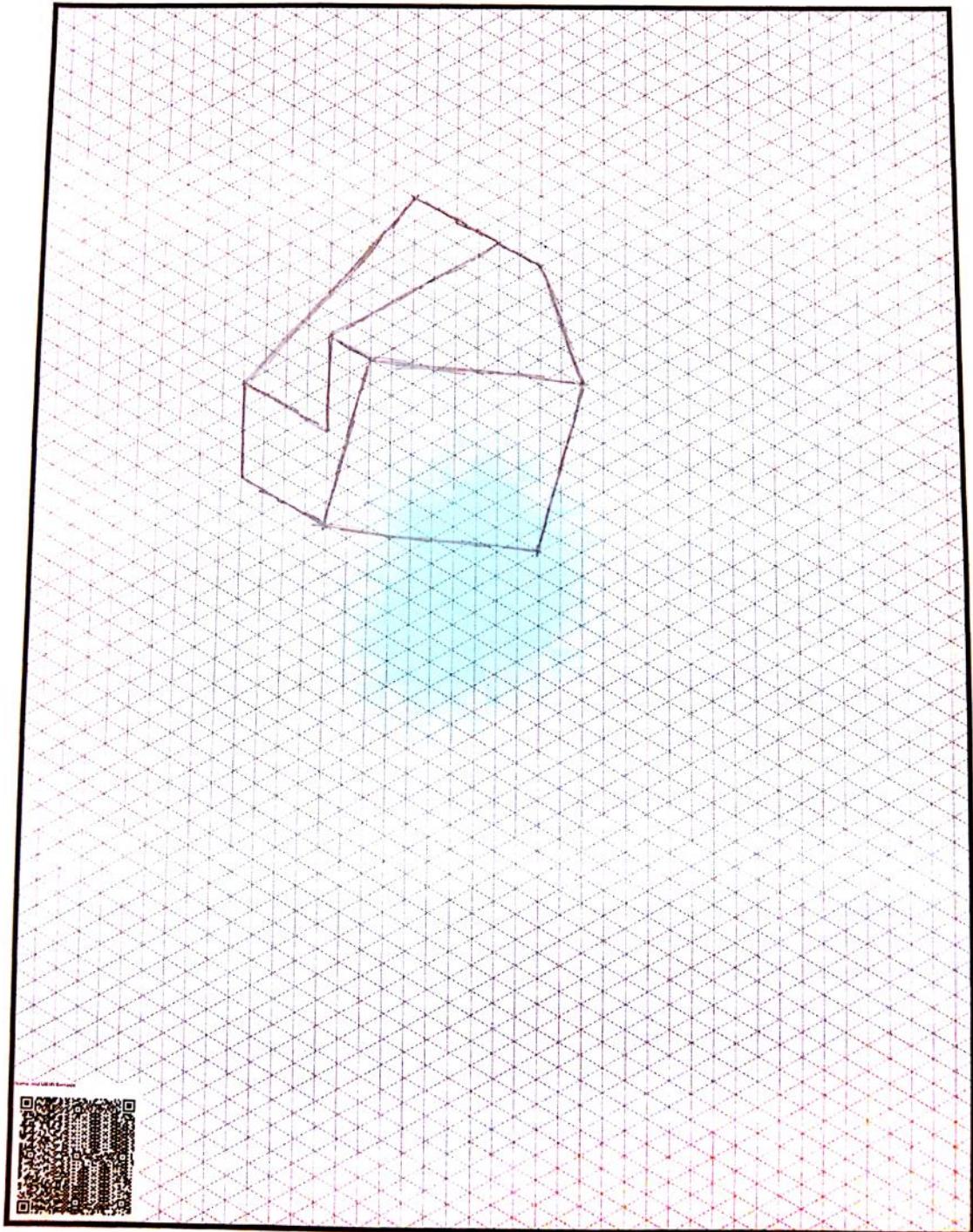
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Assignment #: 611910

Date: \_\_\_\_\_



# Assignment 19

Thursday, July 09, 2015

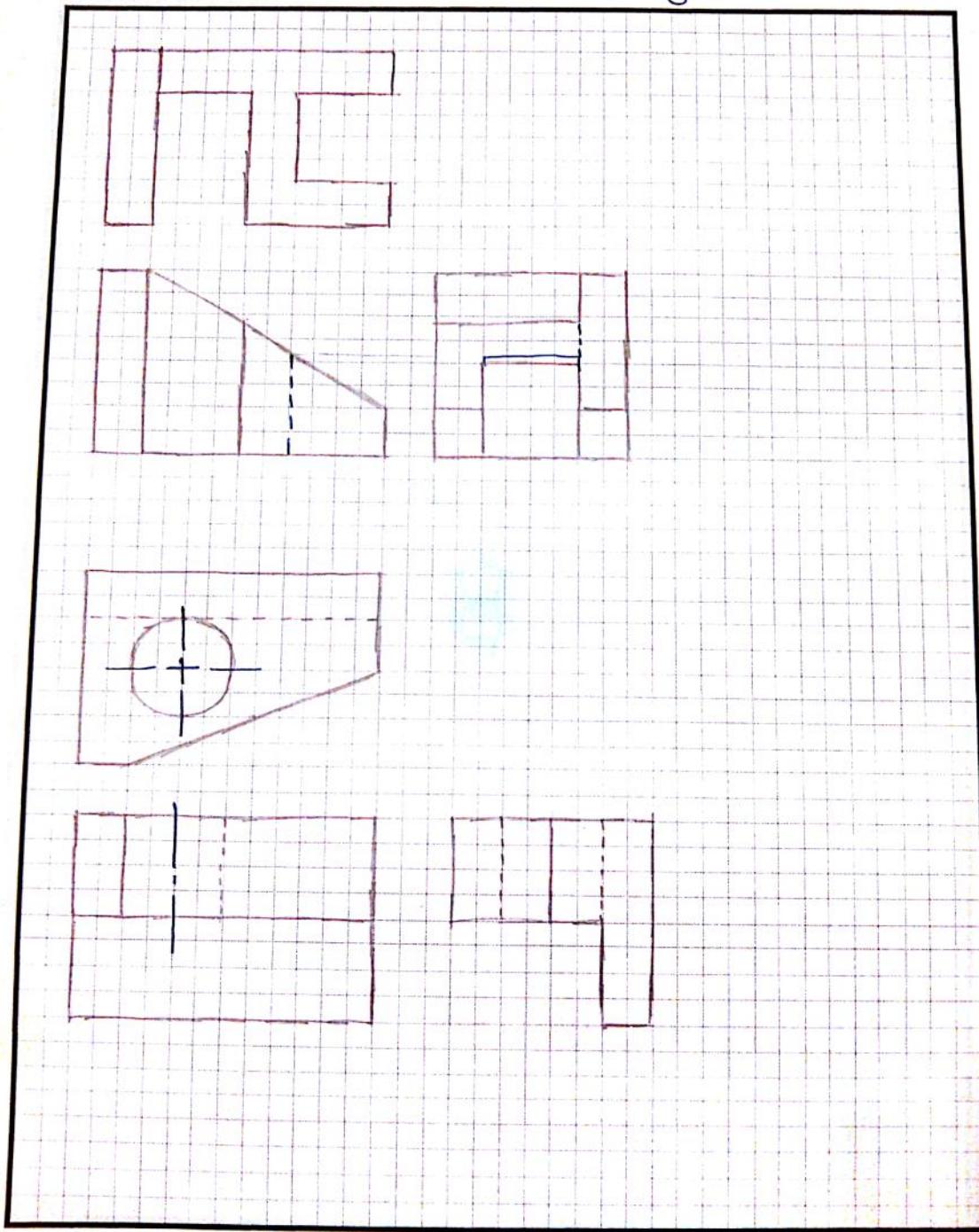
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Name: Egley, Biyce

Assignment #: 011910

Date: 6/23/15

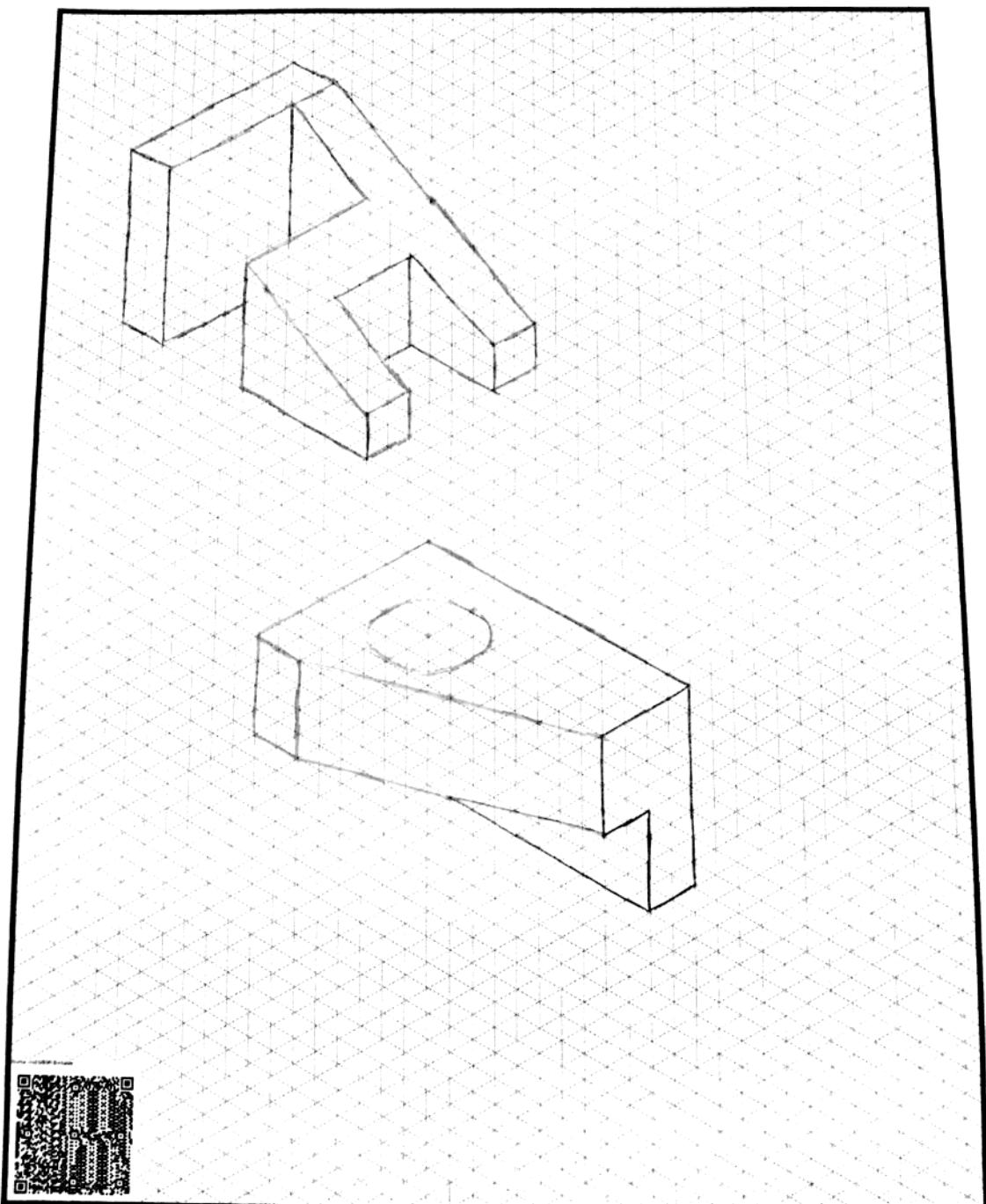
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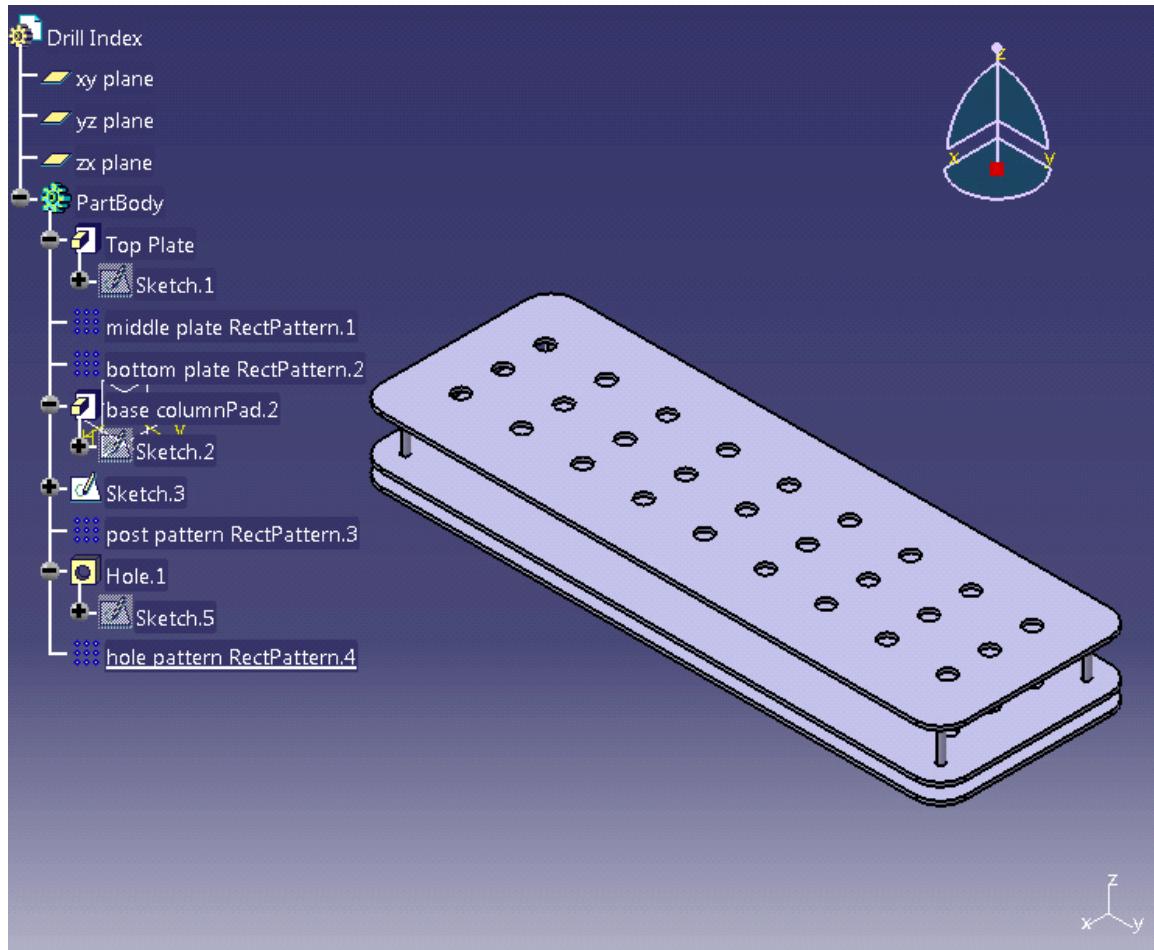
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# Assignment 20

Thursday, July 09, 2015

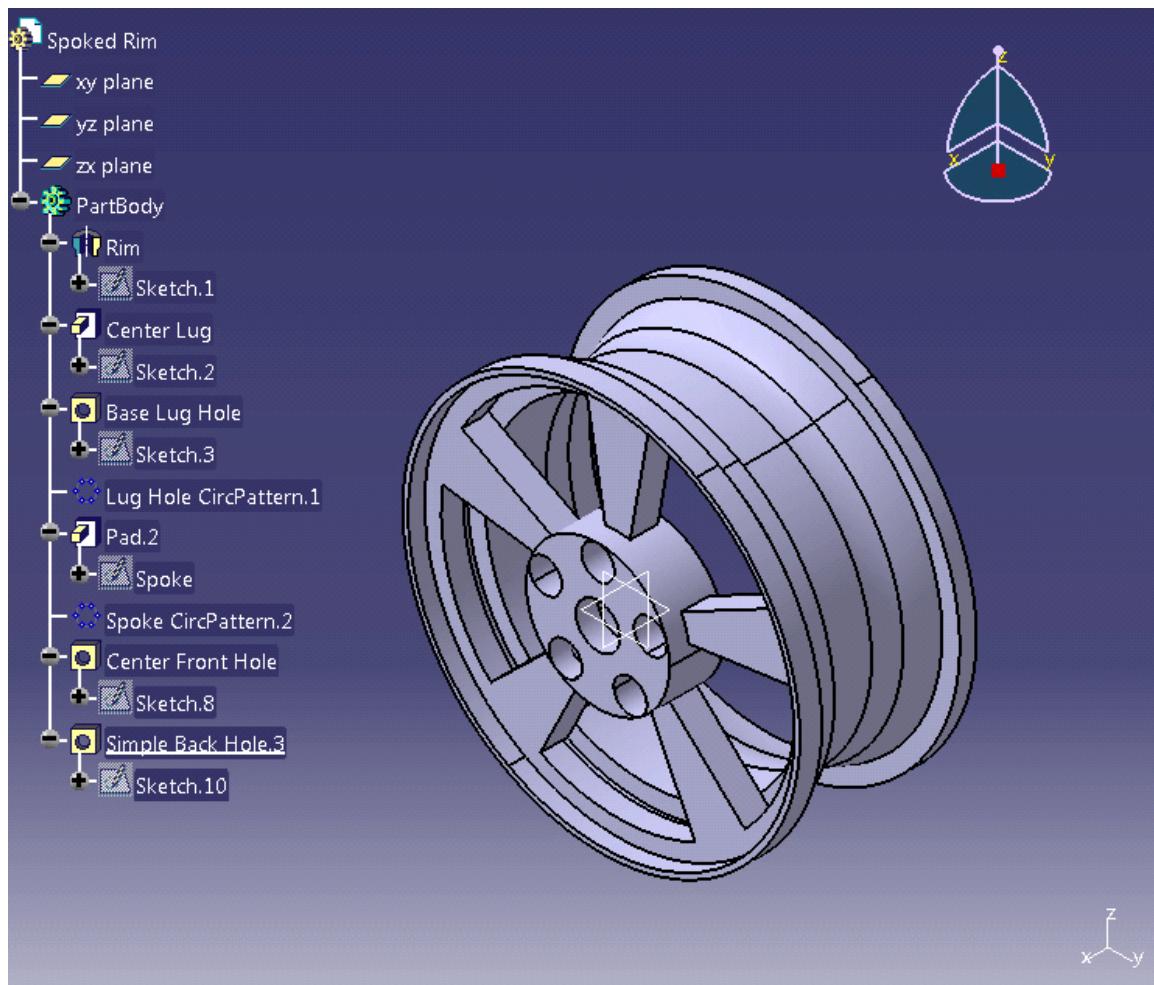
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# Assignment 21

Thursday, July 09, 2015

11:26 AM



# Assignment 22

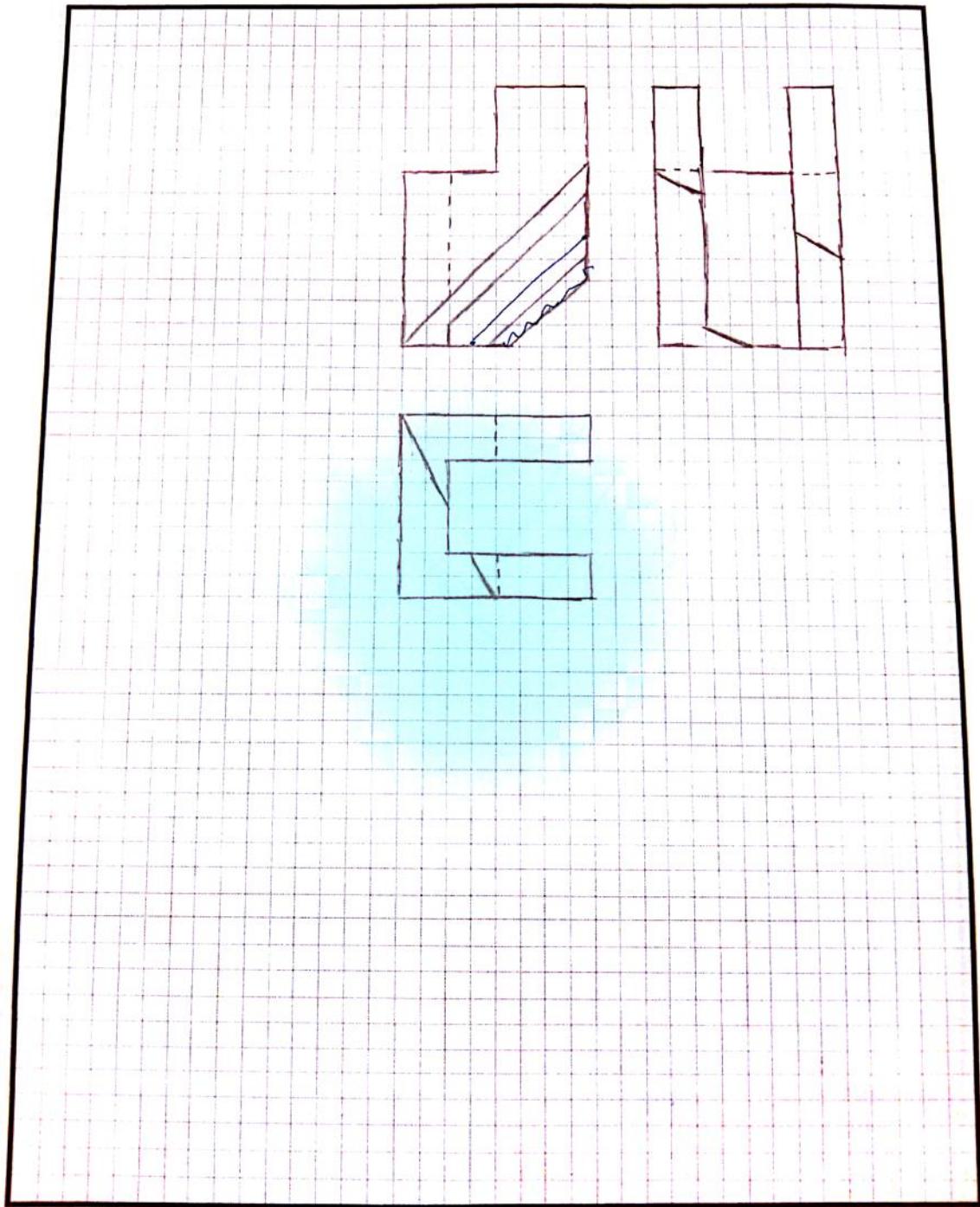
Thursday, July 09, 2015

11:26 AM

Name: Eley, Bryce

Assignment #: 012210  
8.5

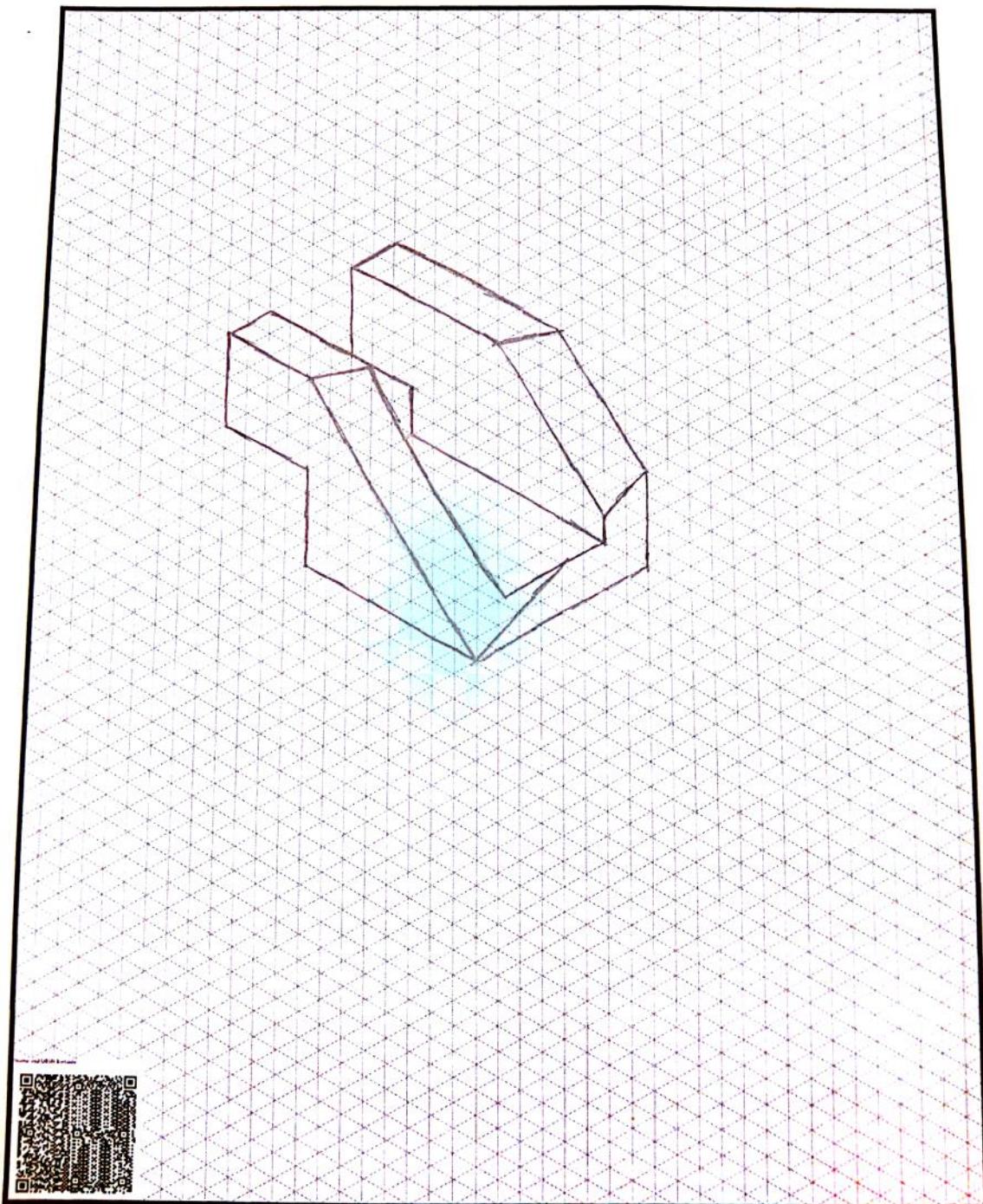
Date: 6/23/15



Name: Encoded into Barcode

Assignment #: 012210

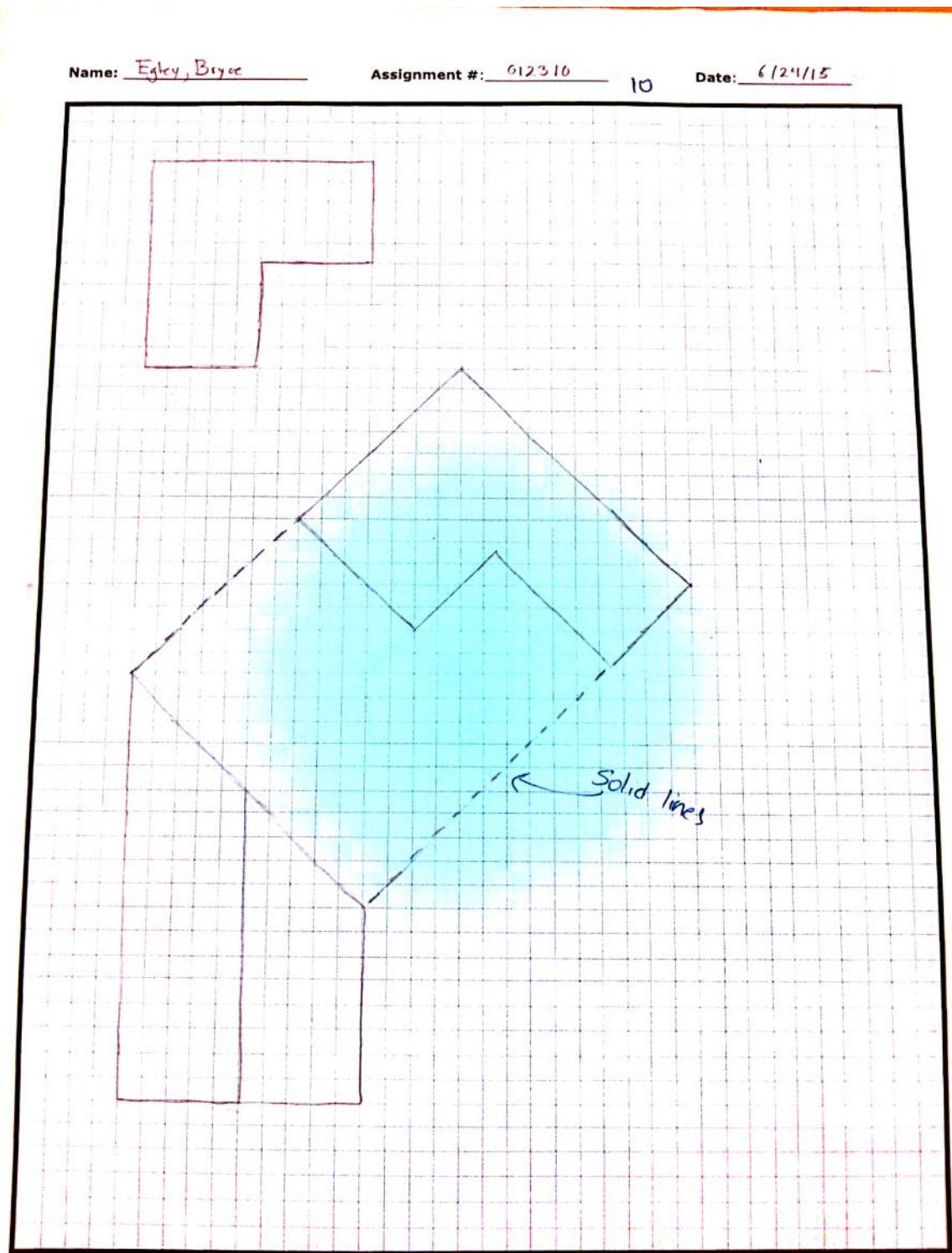
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# Assignment 23

Thursday, July 09, 2015

11:26 AM



# Assignment 24

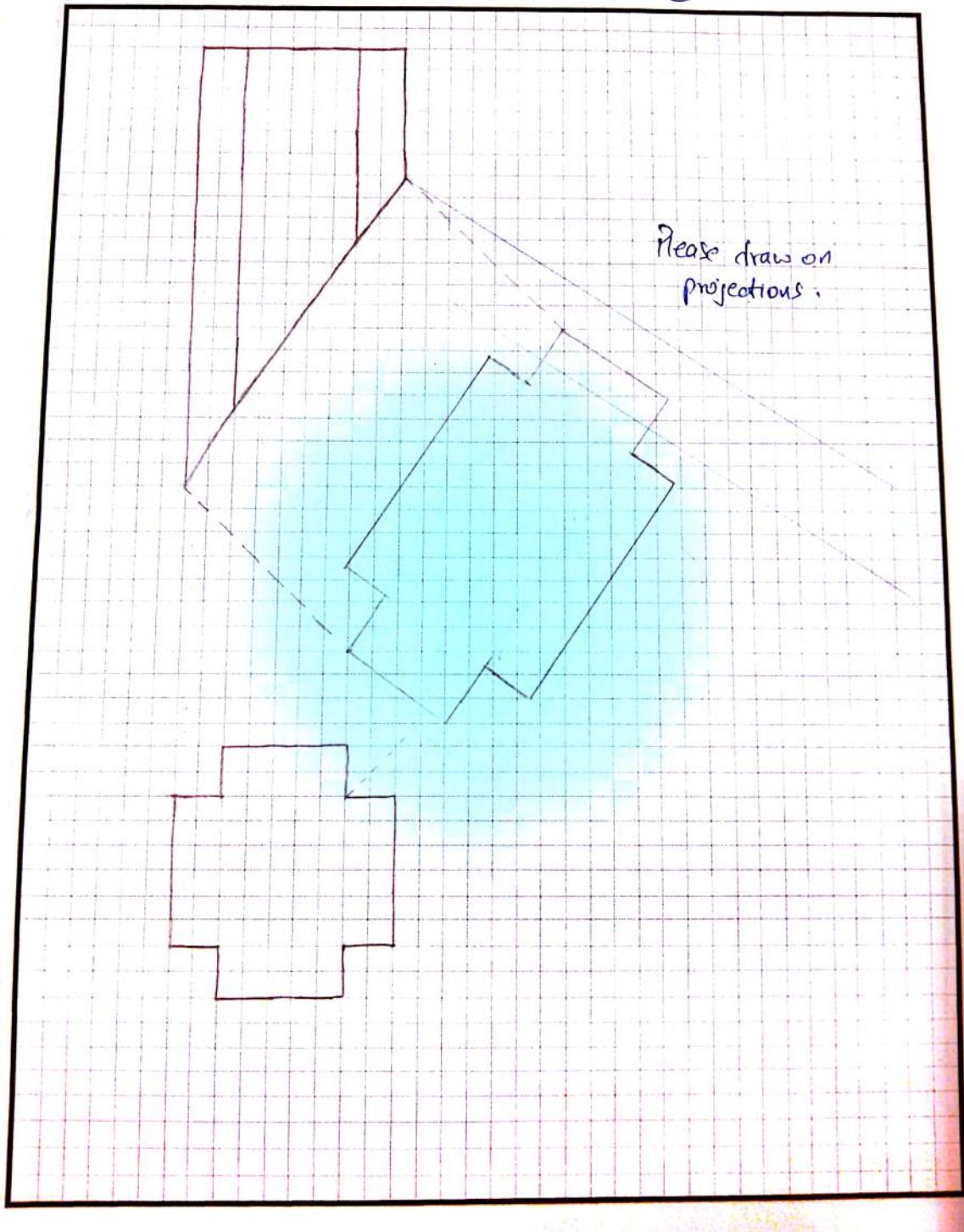
Thursday, July 09, 2015

11:26 AM

Name: Egley, Bryce

Assignment #: 012410

8 Date: 6/24/15



# Assignment 25

Thursday, July 09, 2015

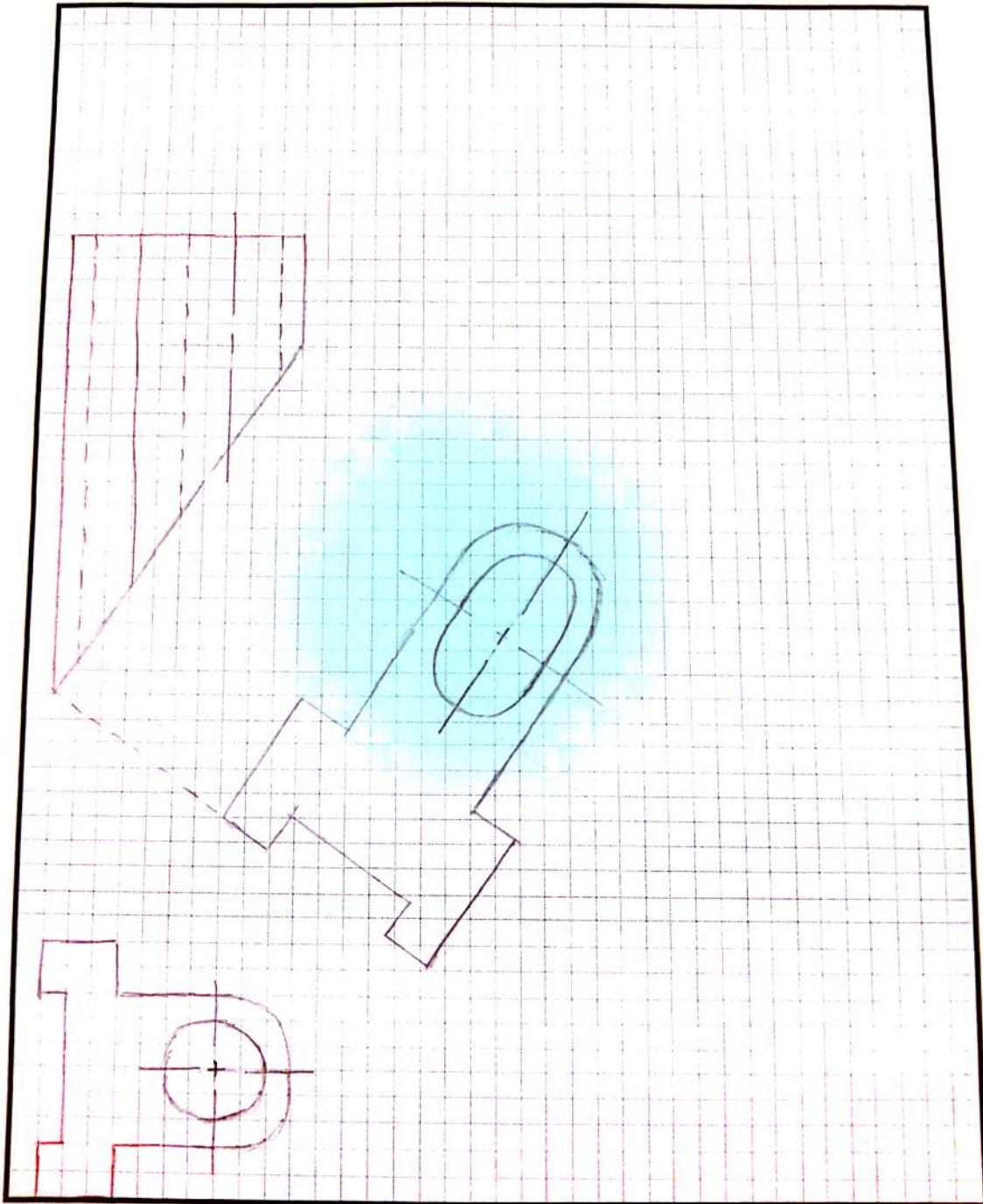
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Name: Egley, Bryce

Assignment #: 012410

Date: 6/24/15

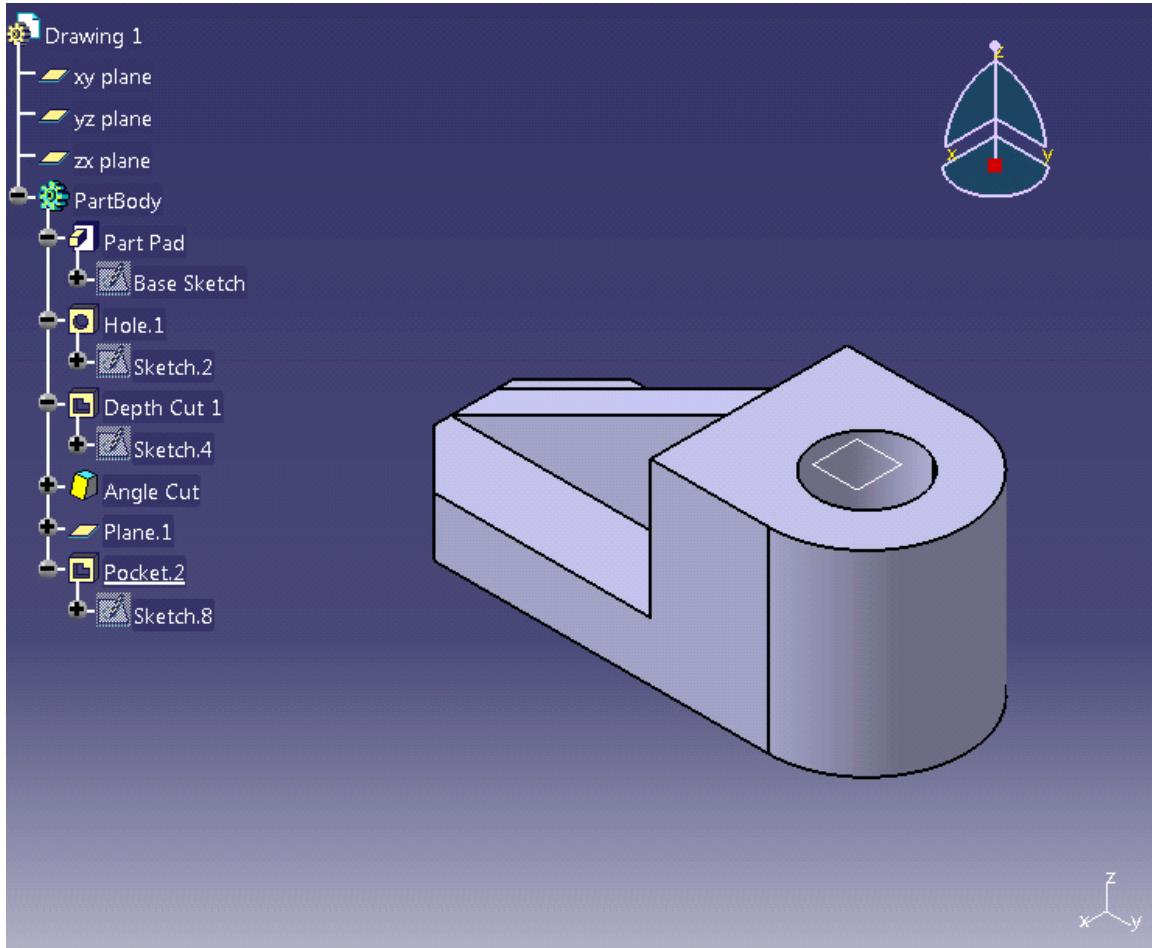
10



# Assignment 26

Thursday, July 09, 2015

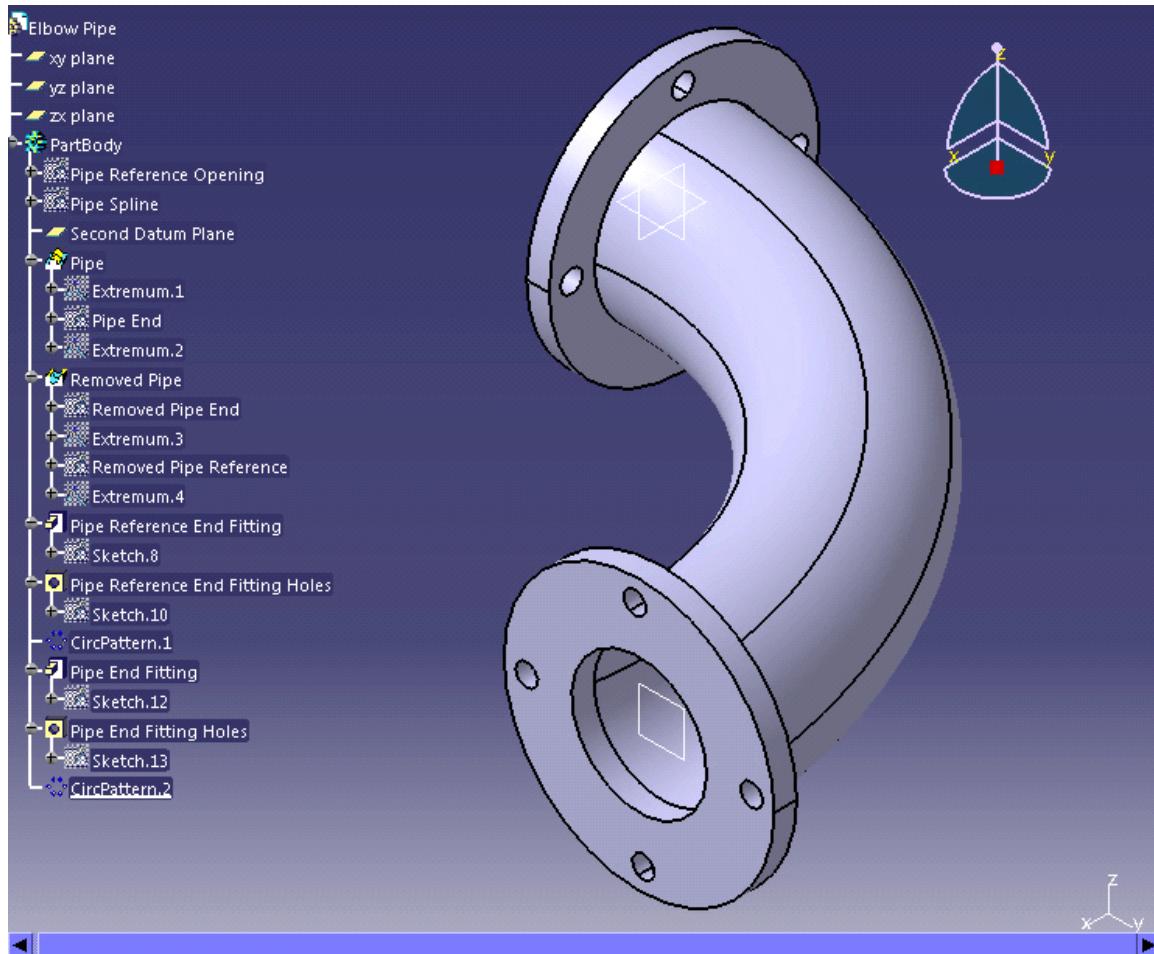
11:26 AM



# Assignment 27

Thursday, July 09, 2015

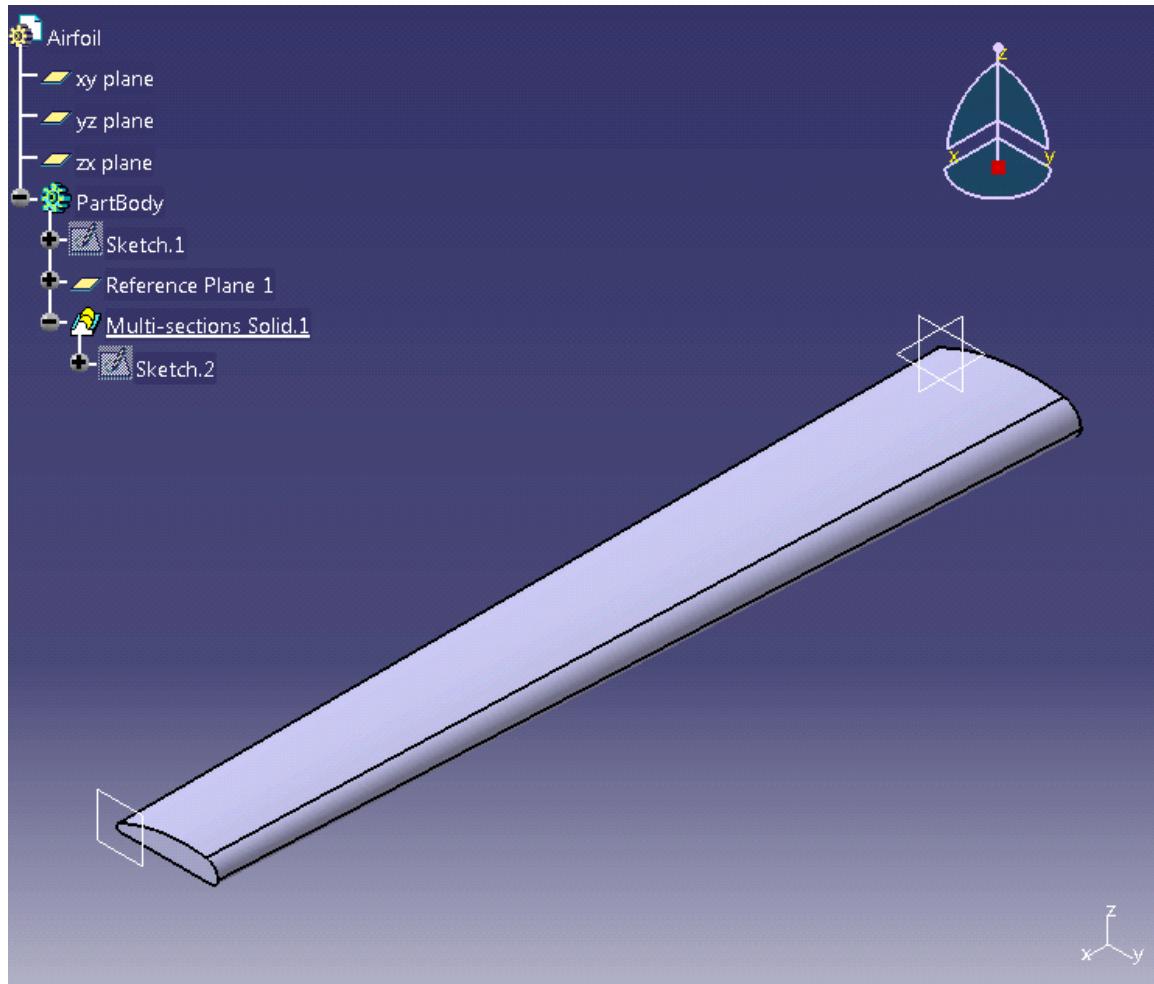
11:26 AM



# Assignment 28

Thursday, July 09, 2015

11:26 AM



# Assignment 29

Thursday, July 09, 2015

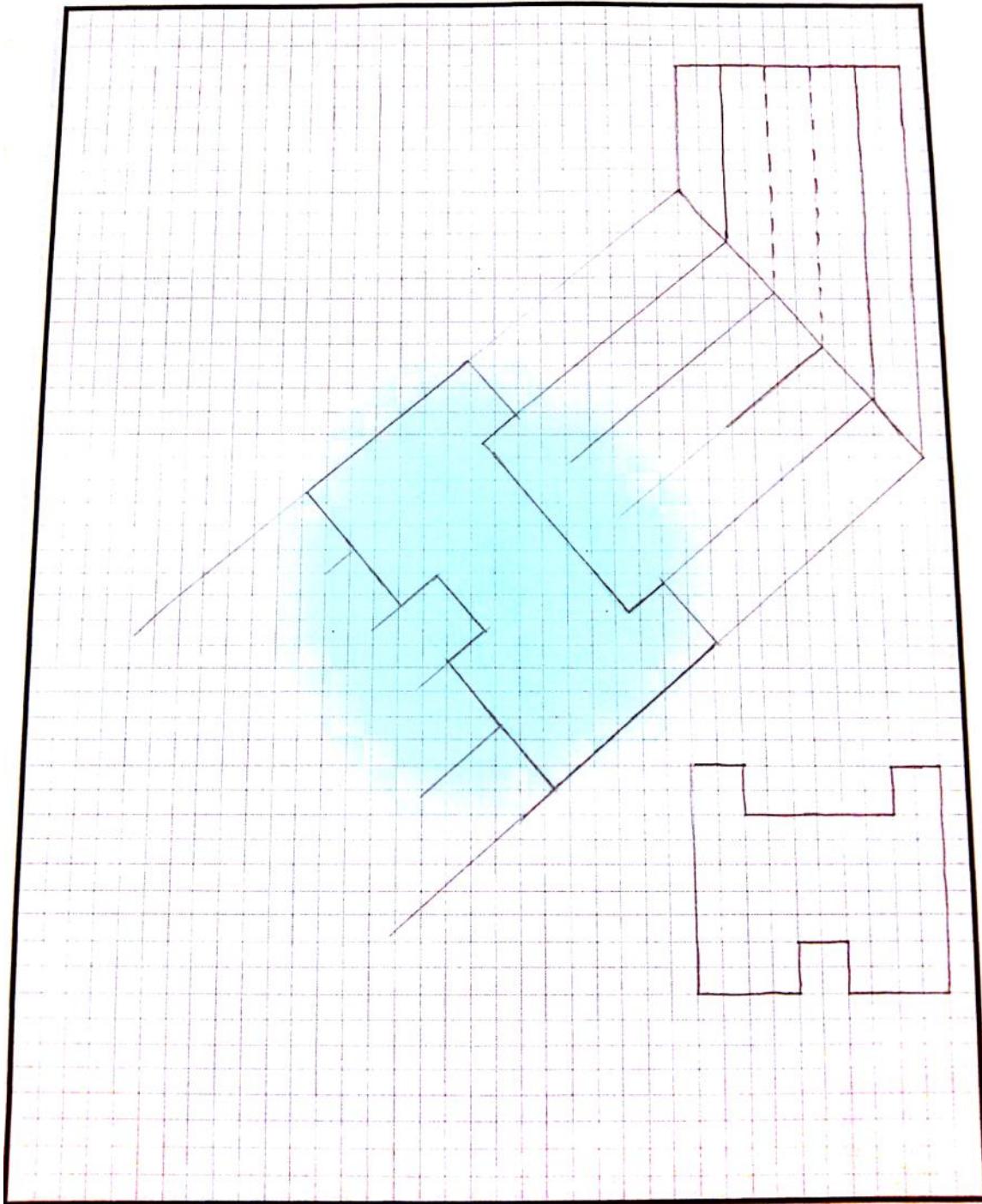
11:26 AM

Name: Egley, Bryce

Assignment #: 012910

10

Date: 6/25/15



# Assignment 30

Thursday, July 09, 2015

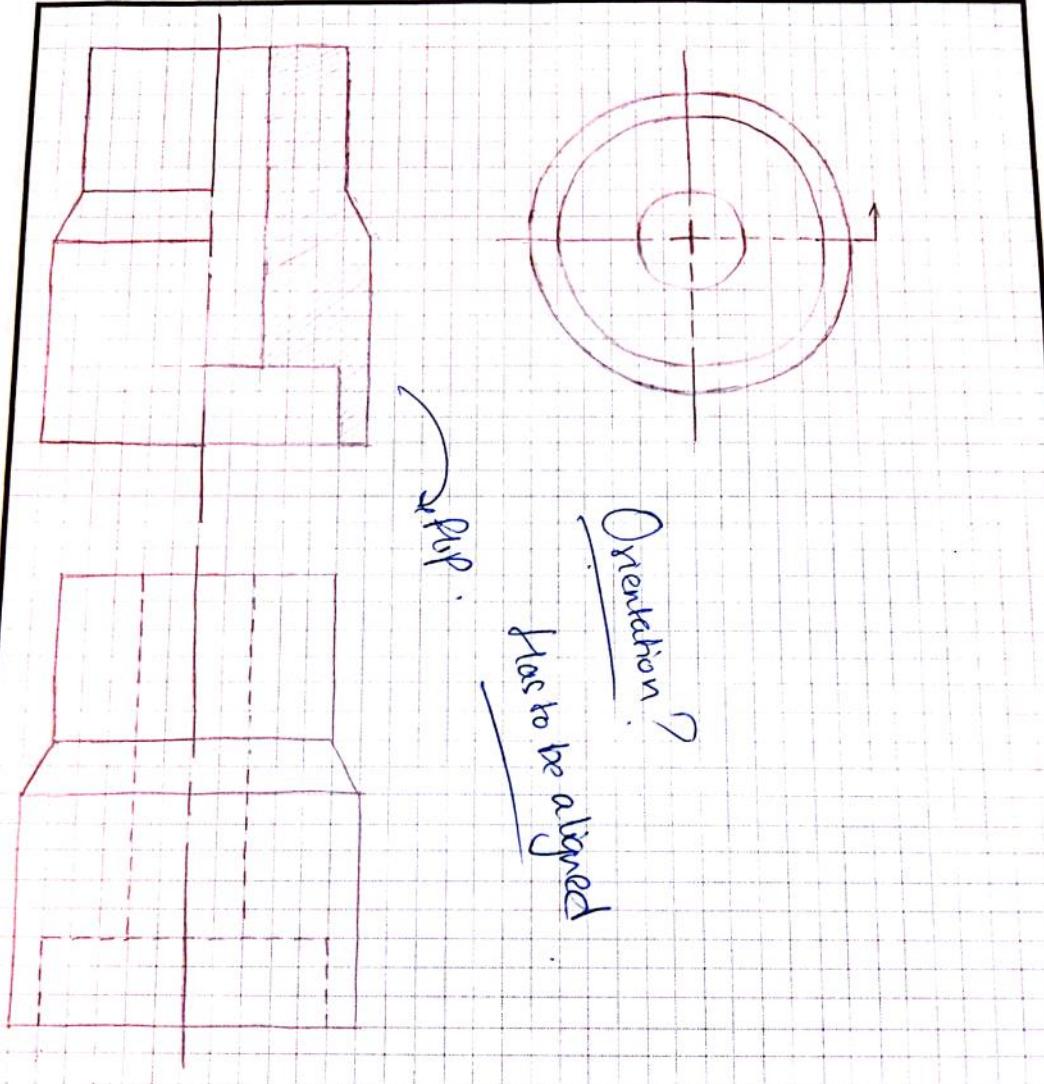
11:26 AM

Name: Egley, Bryce

Assignment #: 013010

8

Date: 6/29/15



# Assignment 31

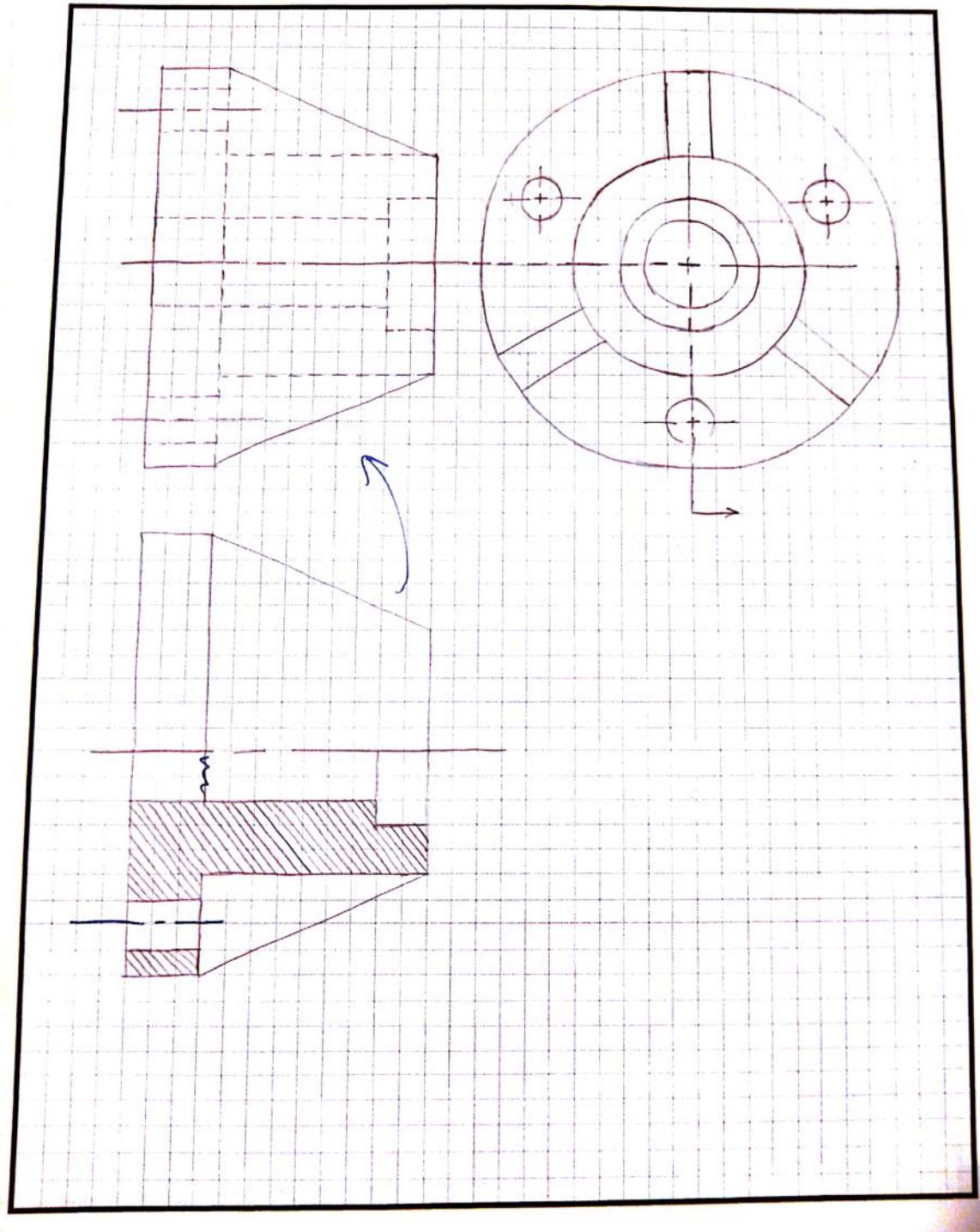
Thursday, July 09, 2015

11:26 AM

Name: Egley, Bryce

Assignment #: 013110

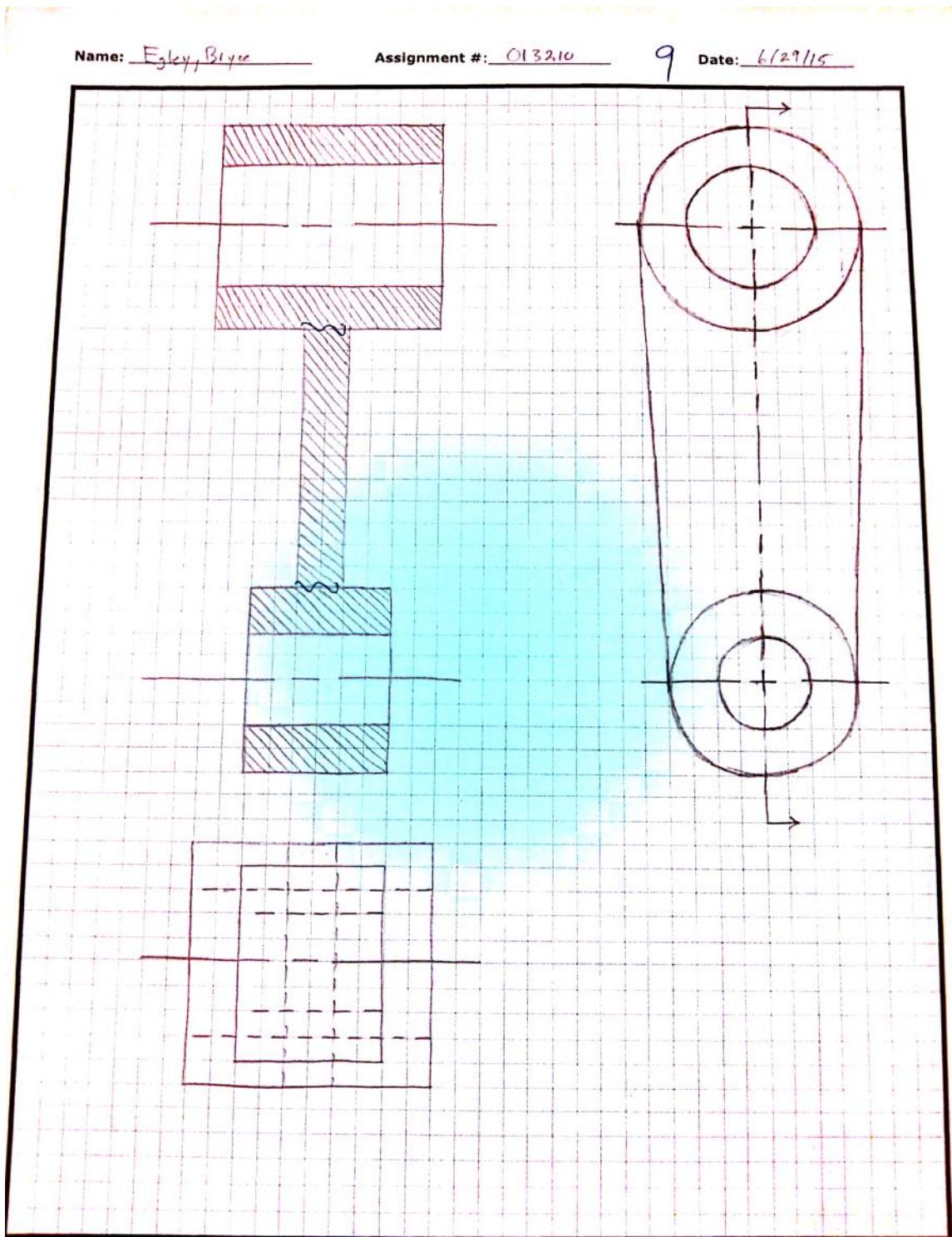
80 Date: 6/29/15



# Assignment 32

Thursday, July 09, 2015

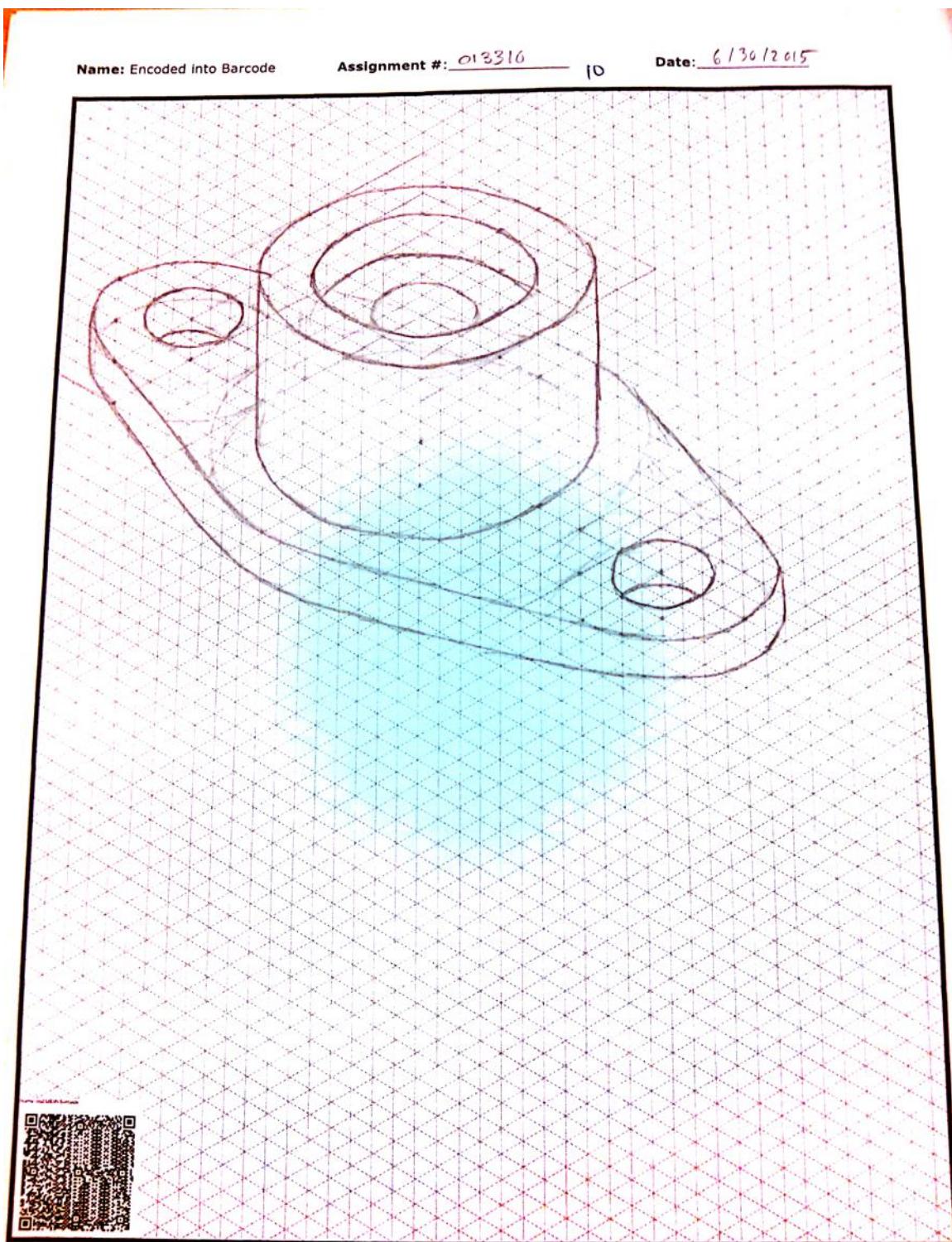
11:26 AM



# Assignment 33

Thursday, July 09, 2015

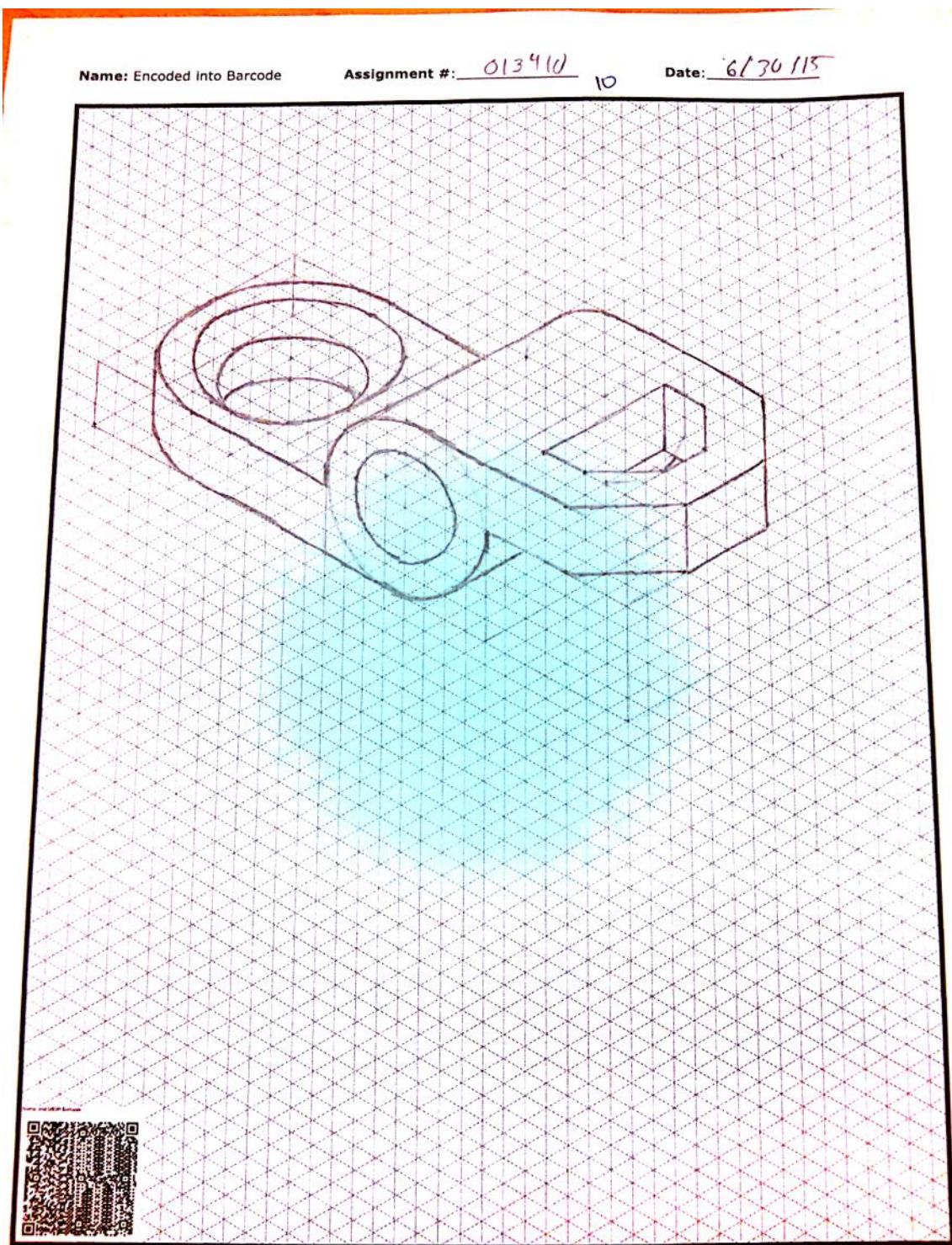
11:26 AM



# Assignment 34

Thursday, July 09, 2015

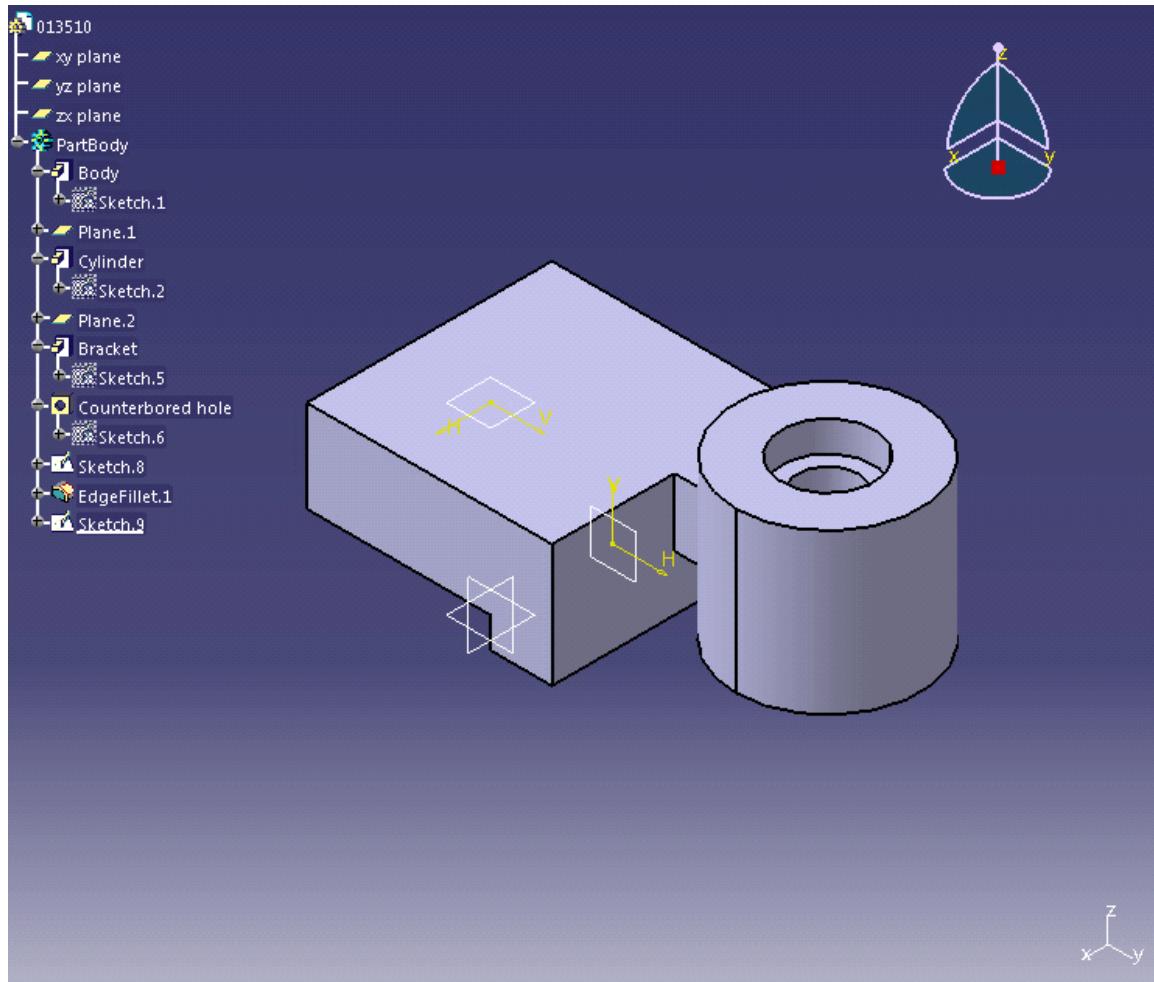
11:26 AM



# Assignment 35

Thursday, July 09, 2015

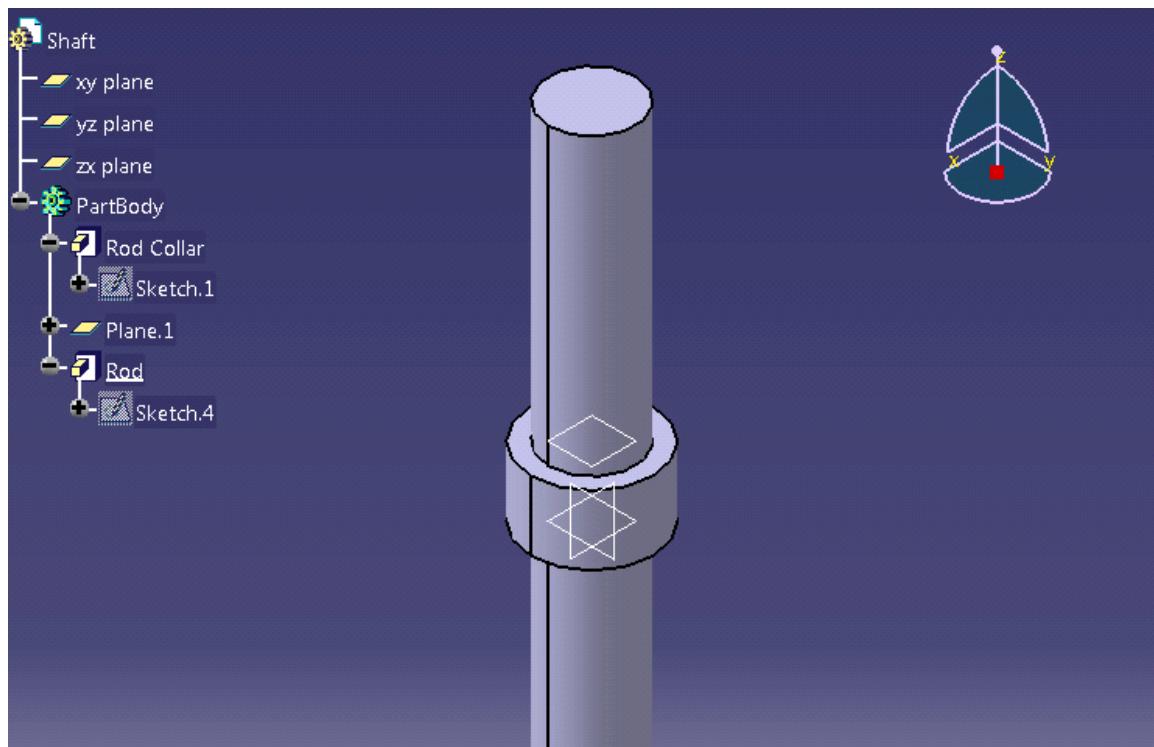
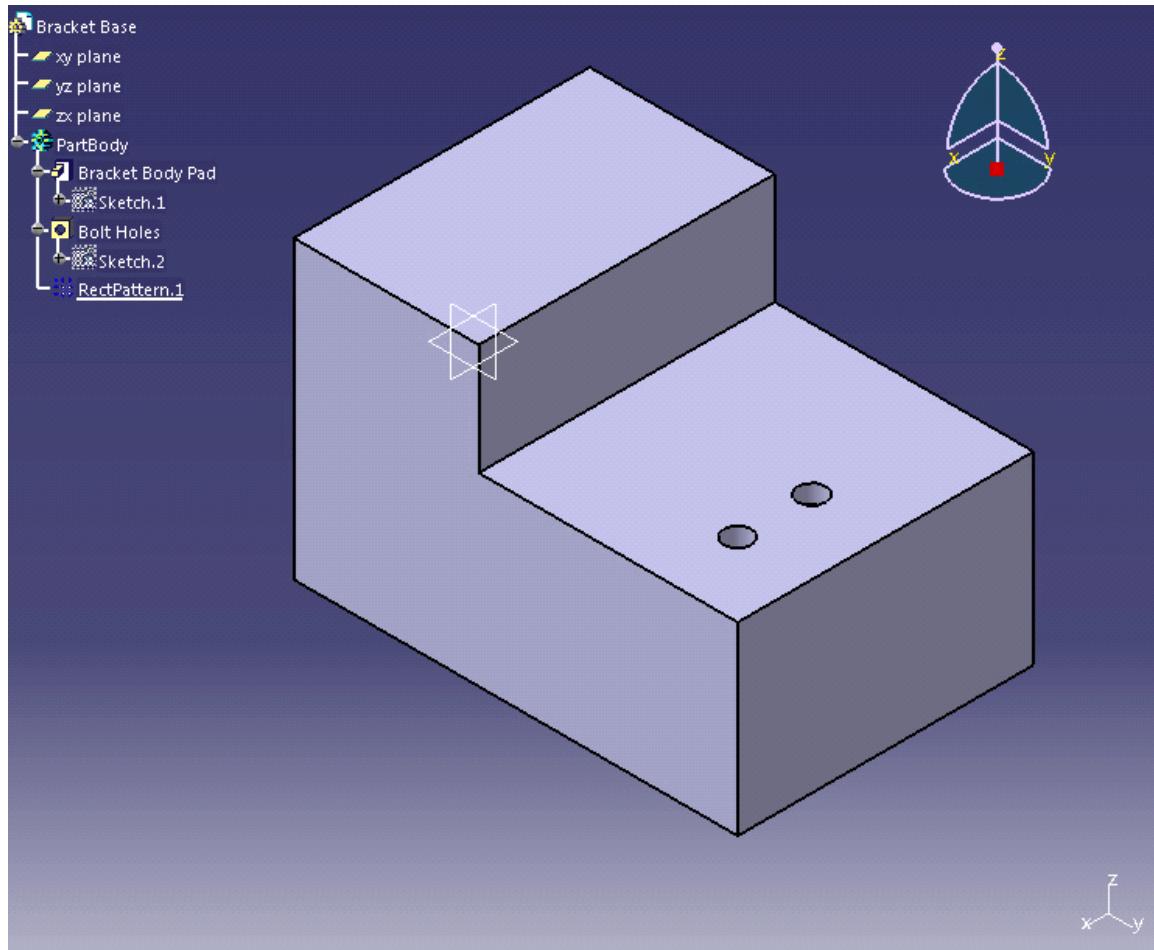
11:26 AM

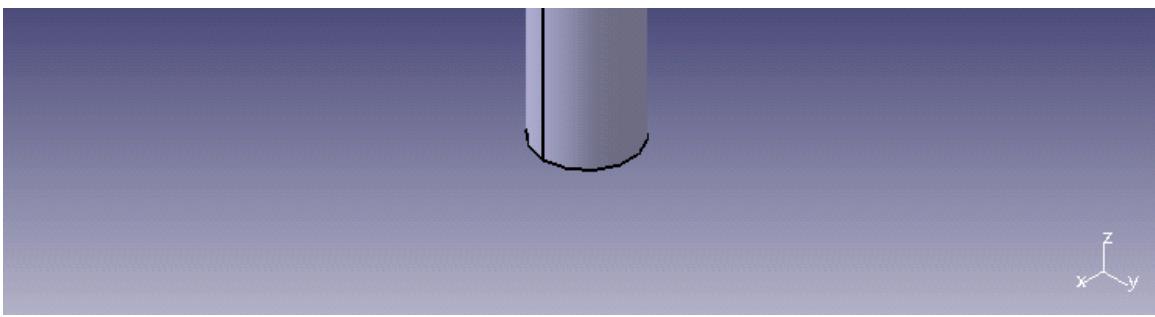


# Assignment 36

Thursday, July 09, 2015

11:26 AM

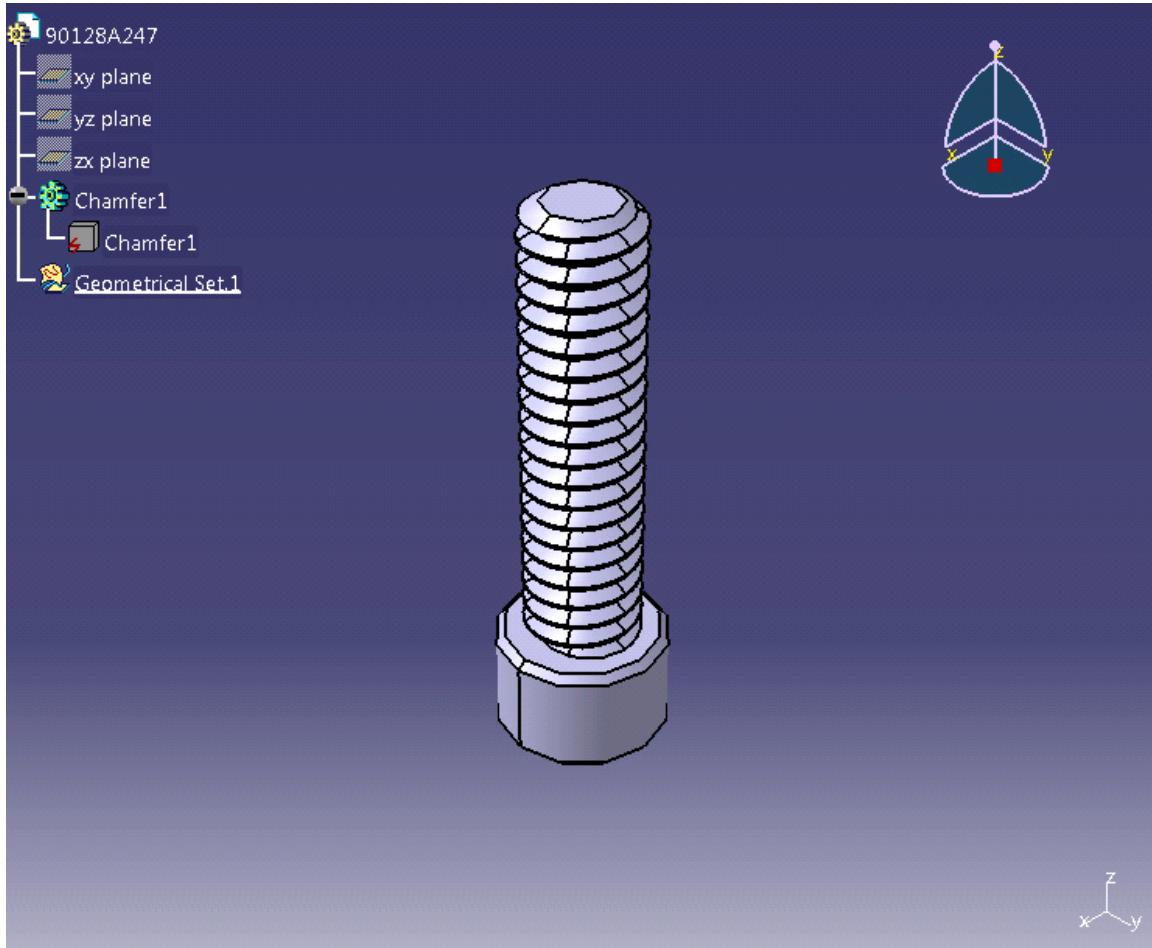




# Assignment 37

Thursday, July 09, 2015

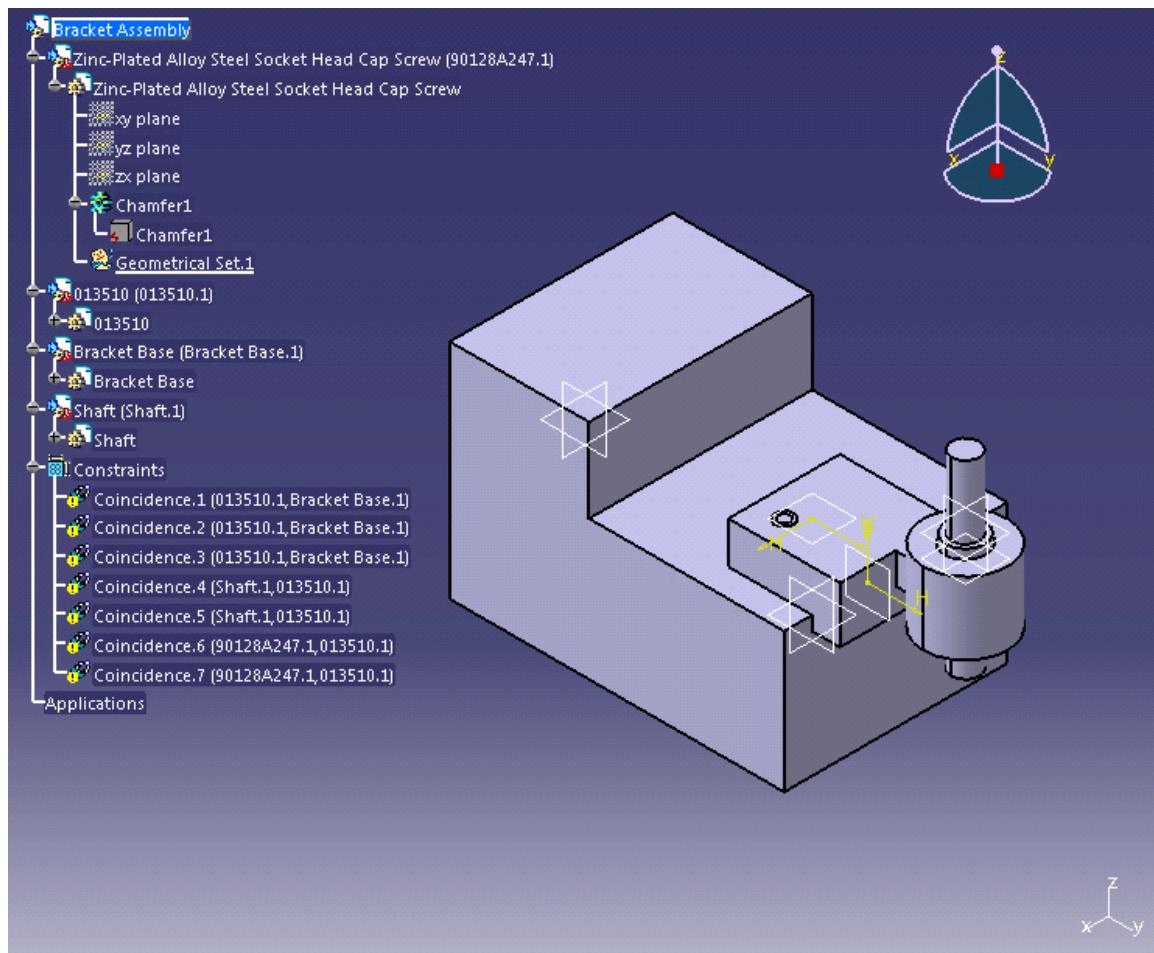
11:26 AM



# Assignment 38

Thursday, July 09, 2015

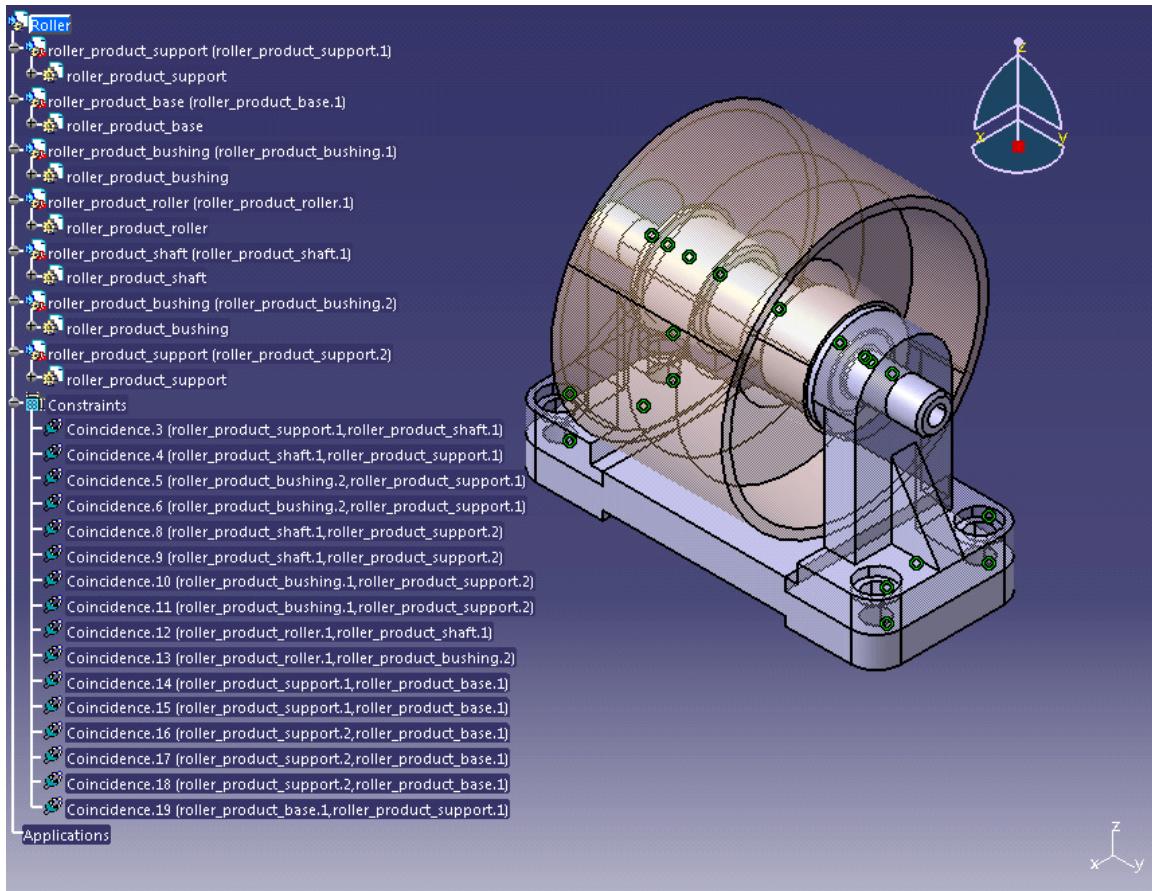
11:26 AM



# Assignment 39

Thursday, July 09, 2015

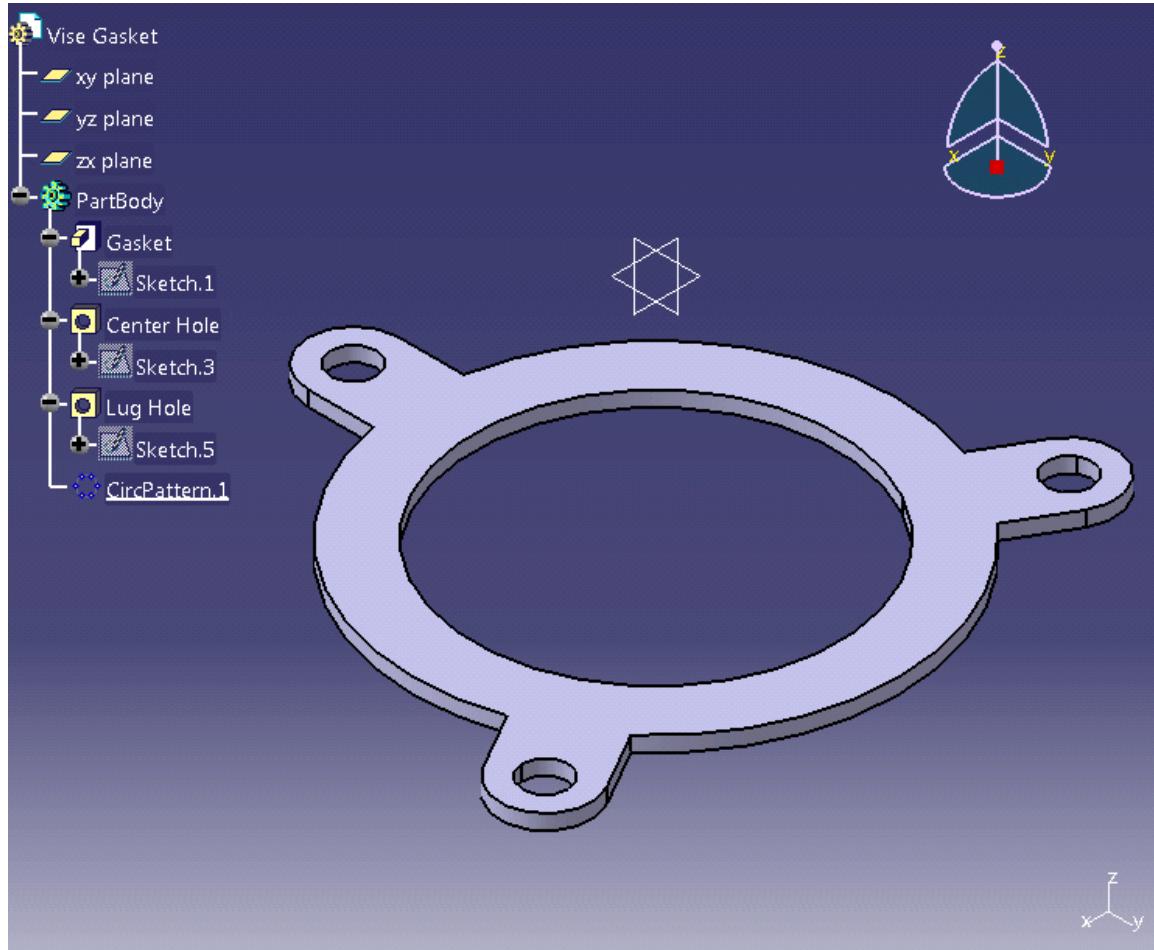
11:26 AM



# Assignment 40

Thursday, July 09, 2015

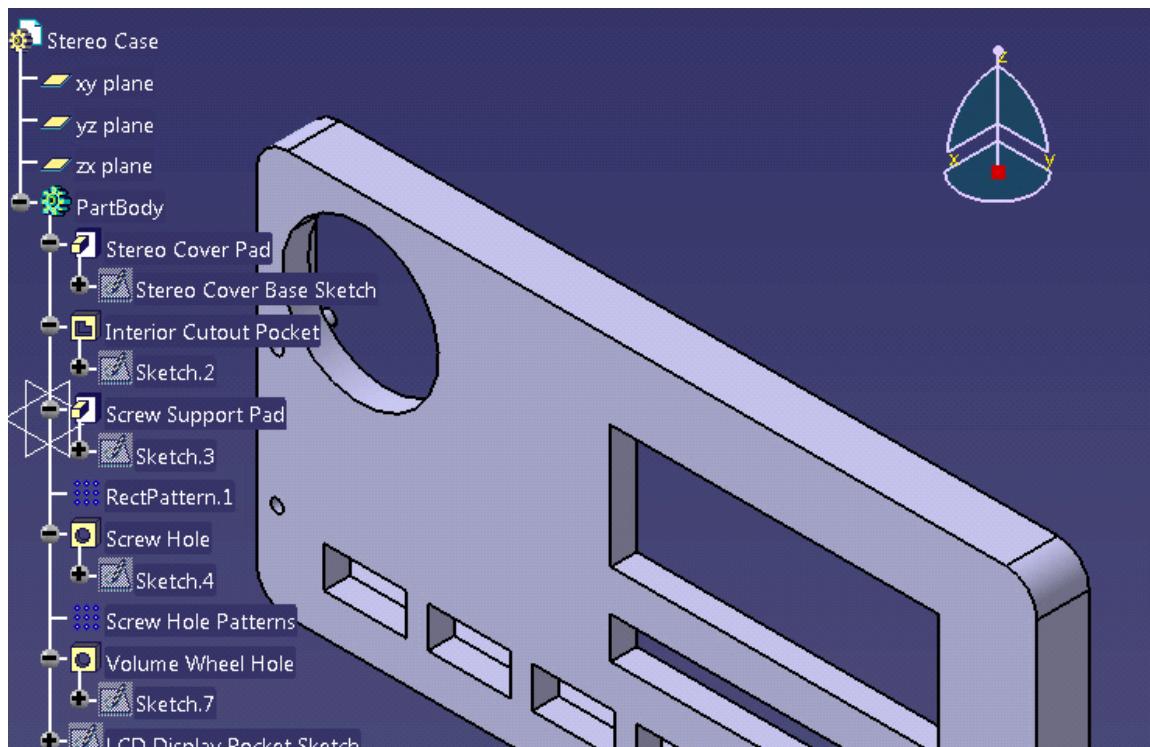
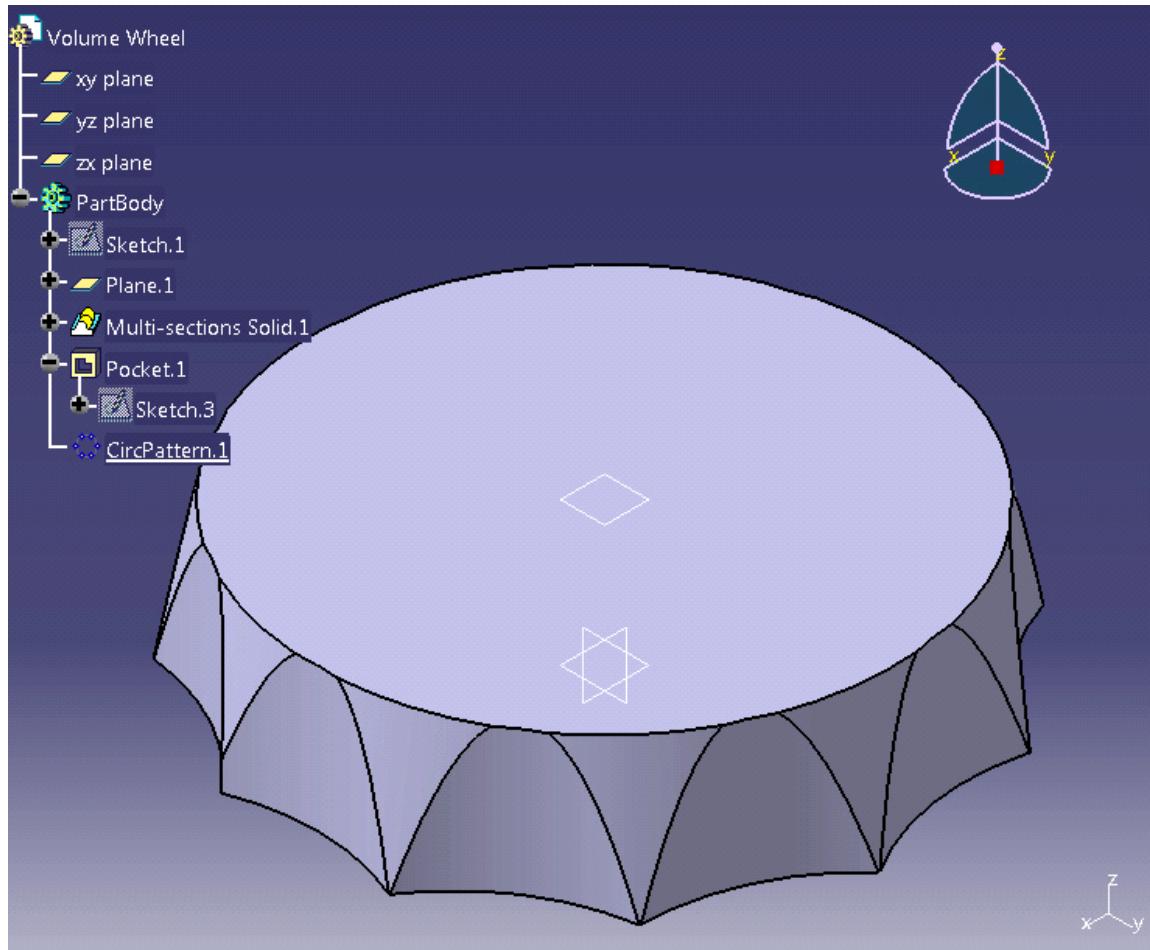
11:26 AM

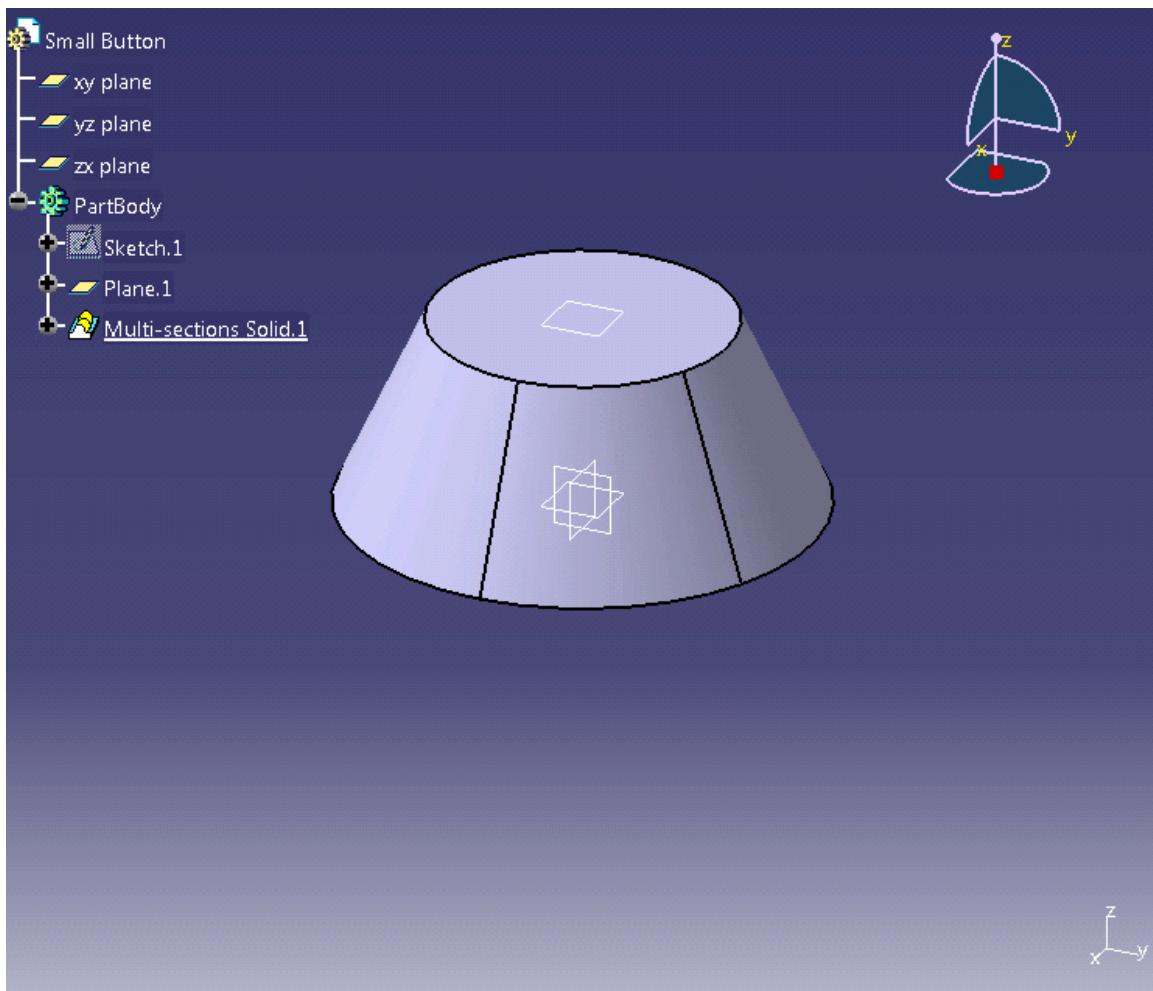
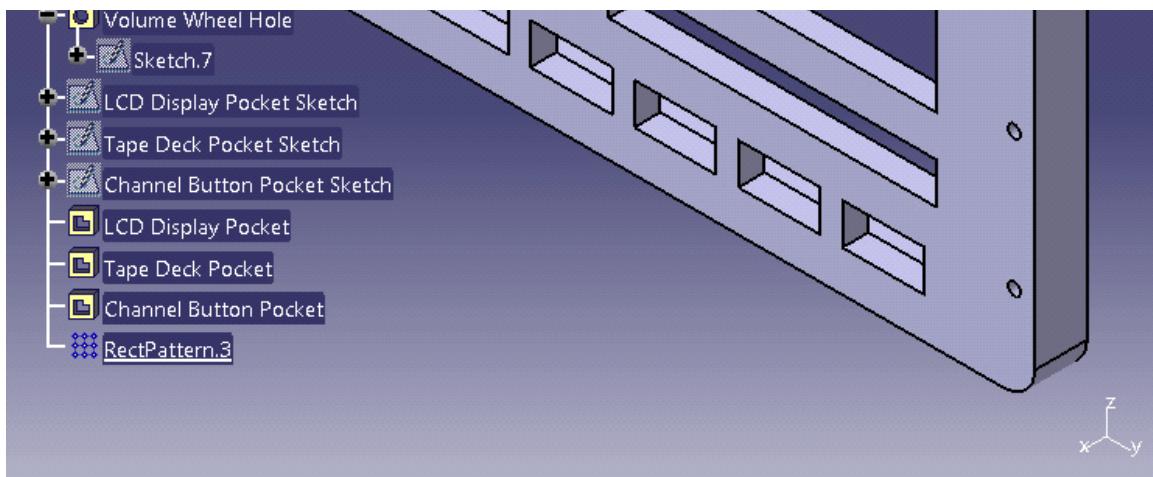


# Assignment 41

Thursday, July 09, 2015

11:26 AM

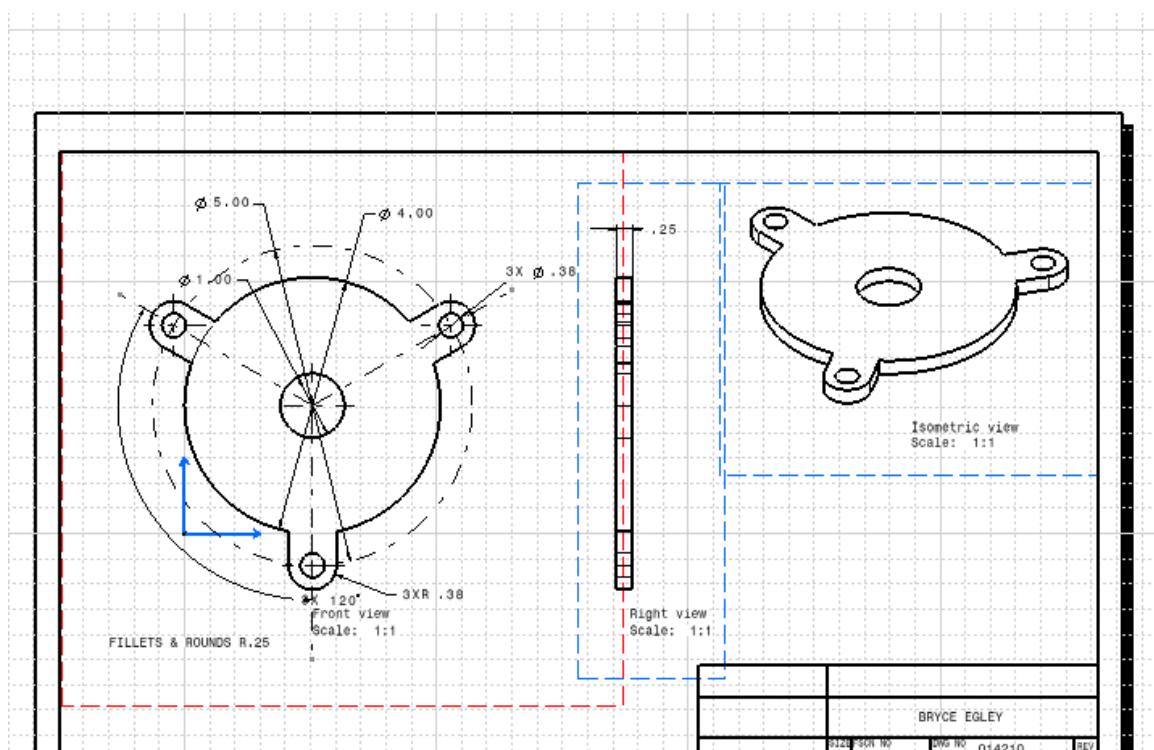
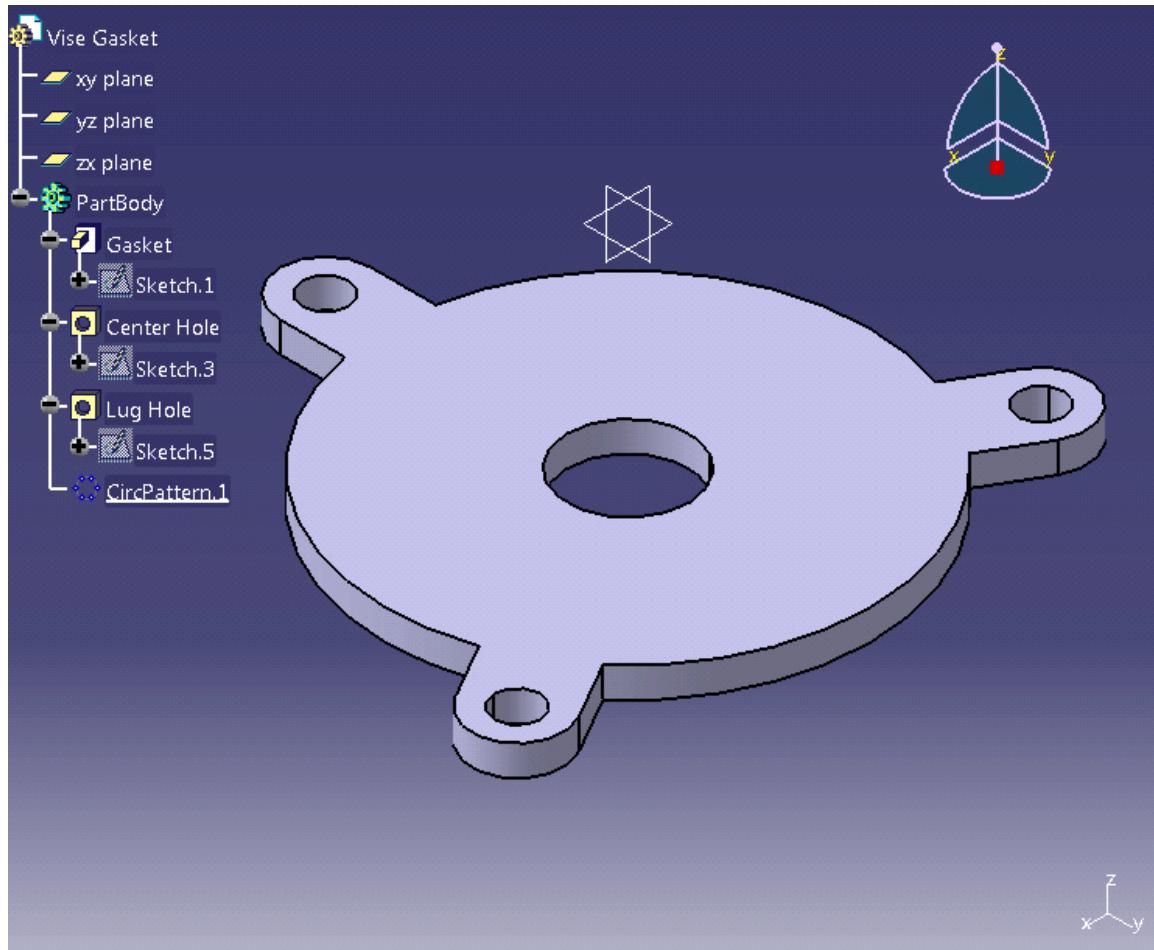


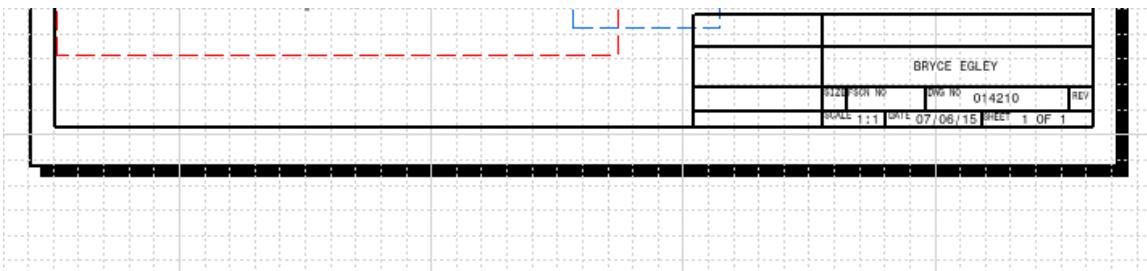


# Assignment 42

Thursday, July 09, 2015

11:26 AM

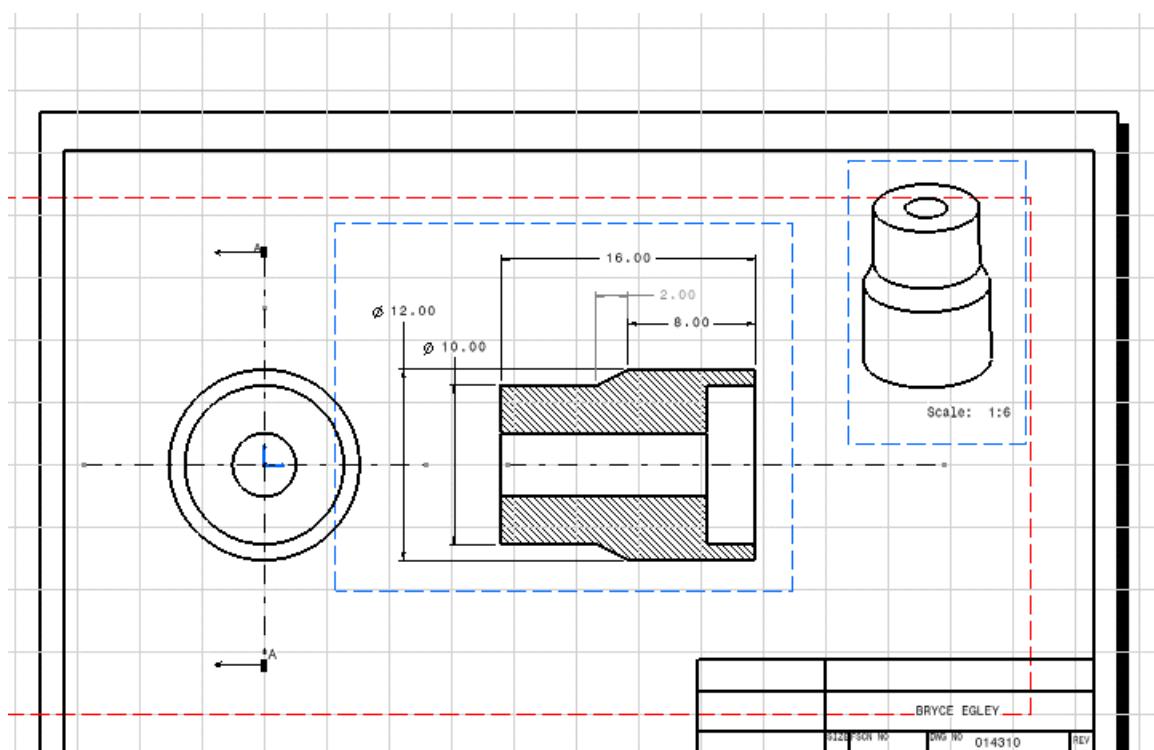
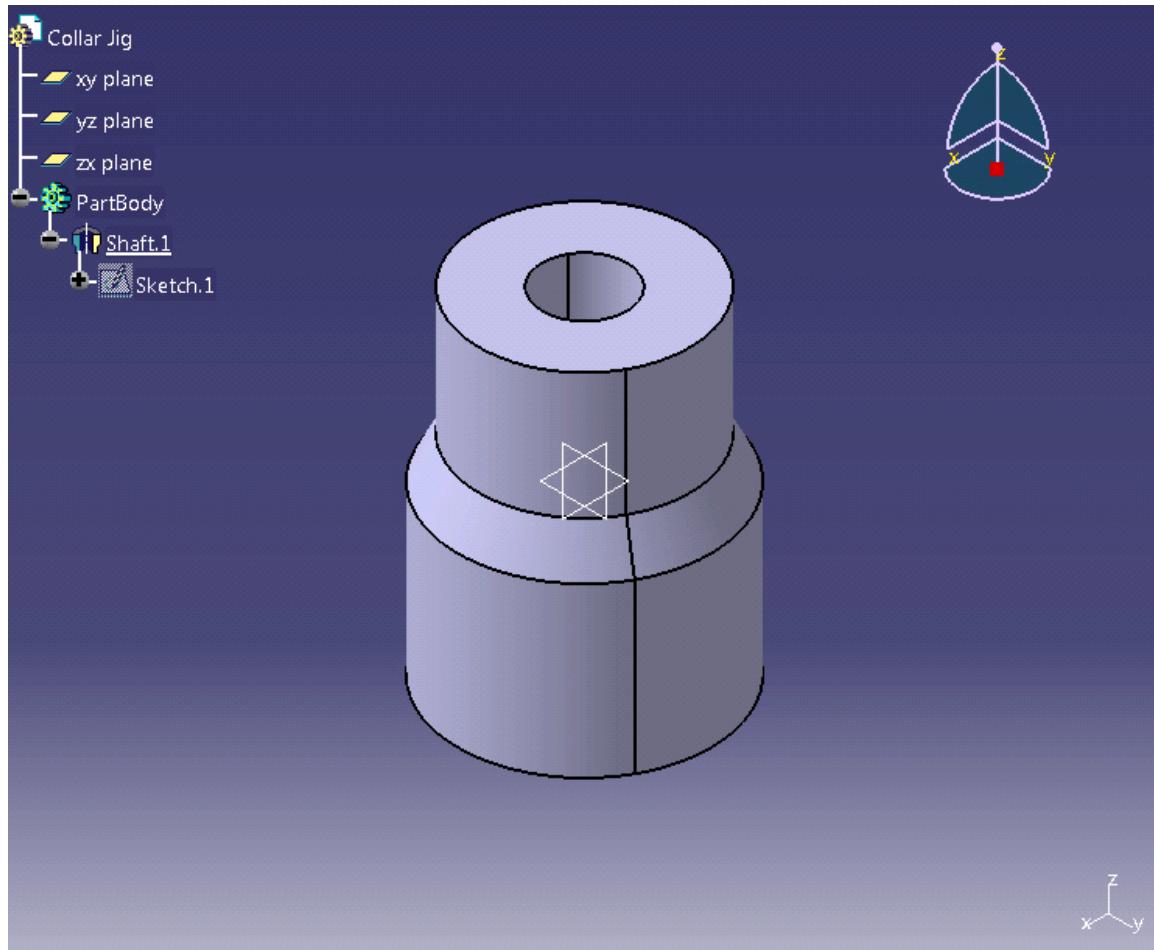


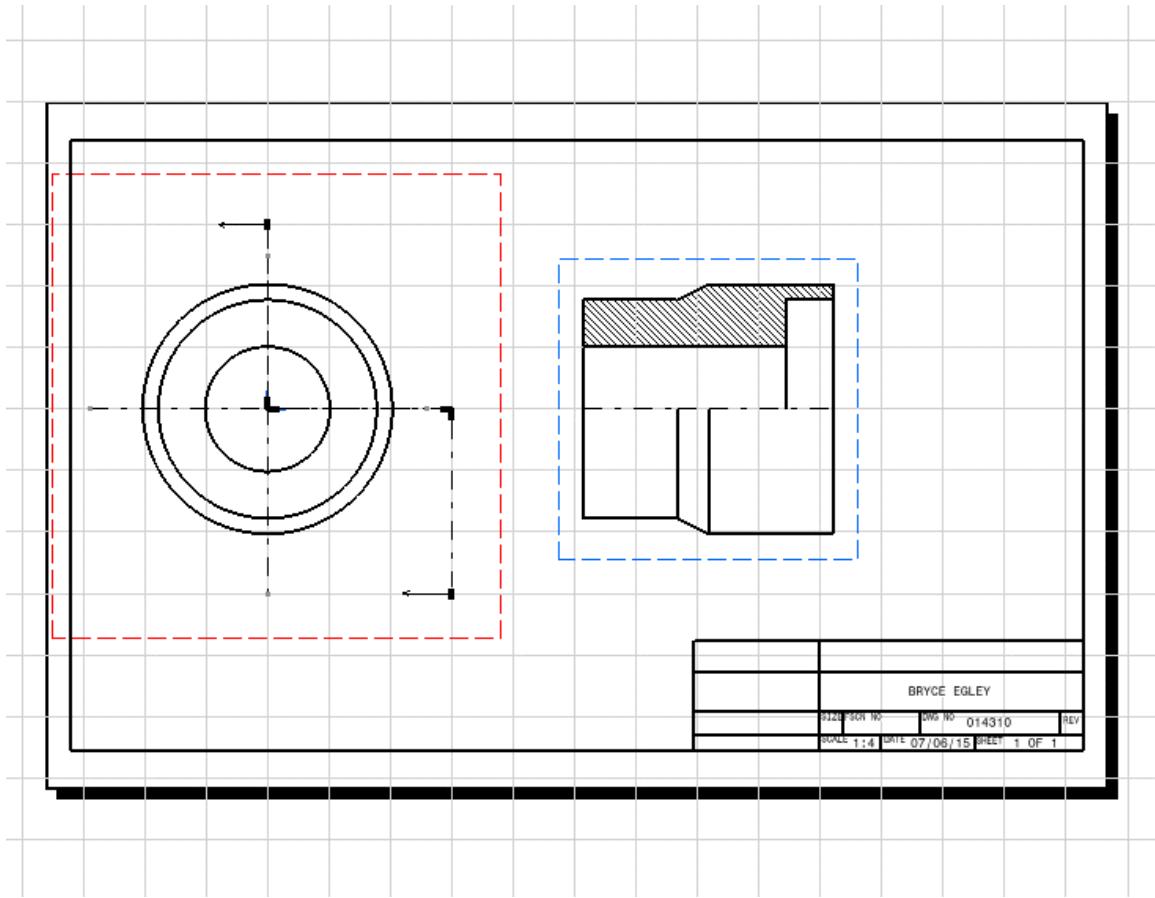
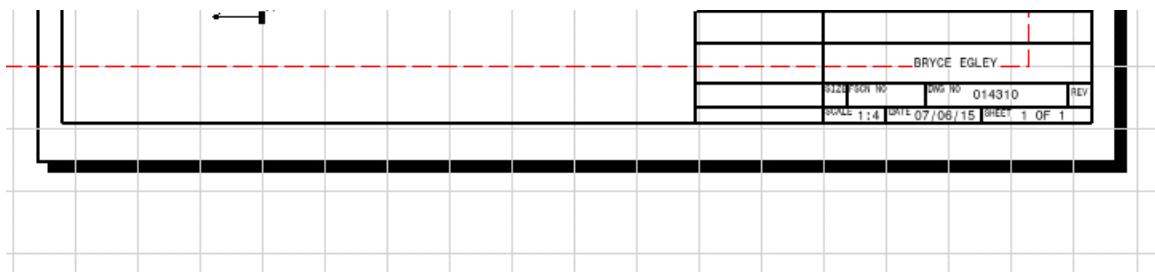


# Assignment 43

Thursday, July 09, 2015

11:26 AM

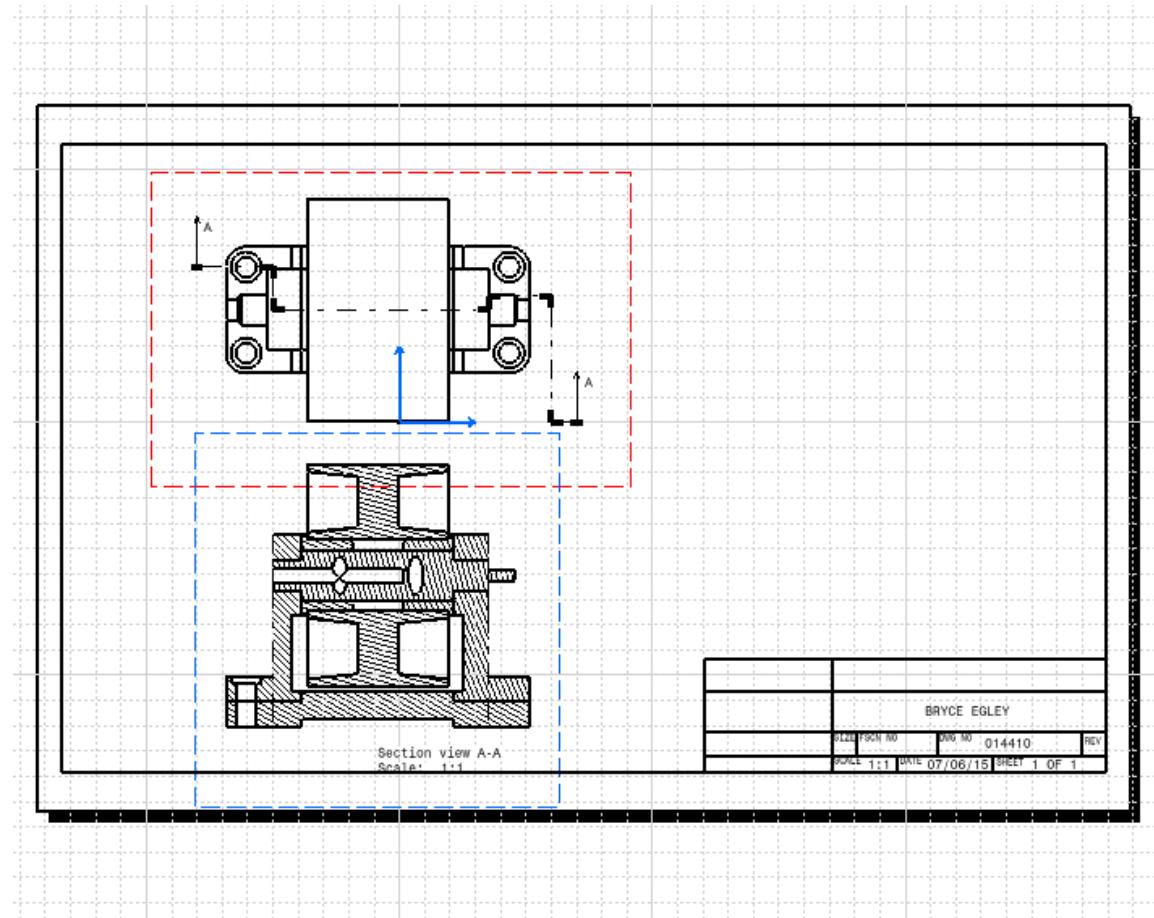




# Assignment 44

Thursday, July 09, 2015

11:26 AM



# Assignment 45

Thursday, July 09, 2015

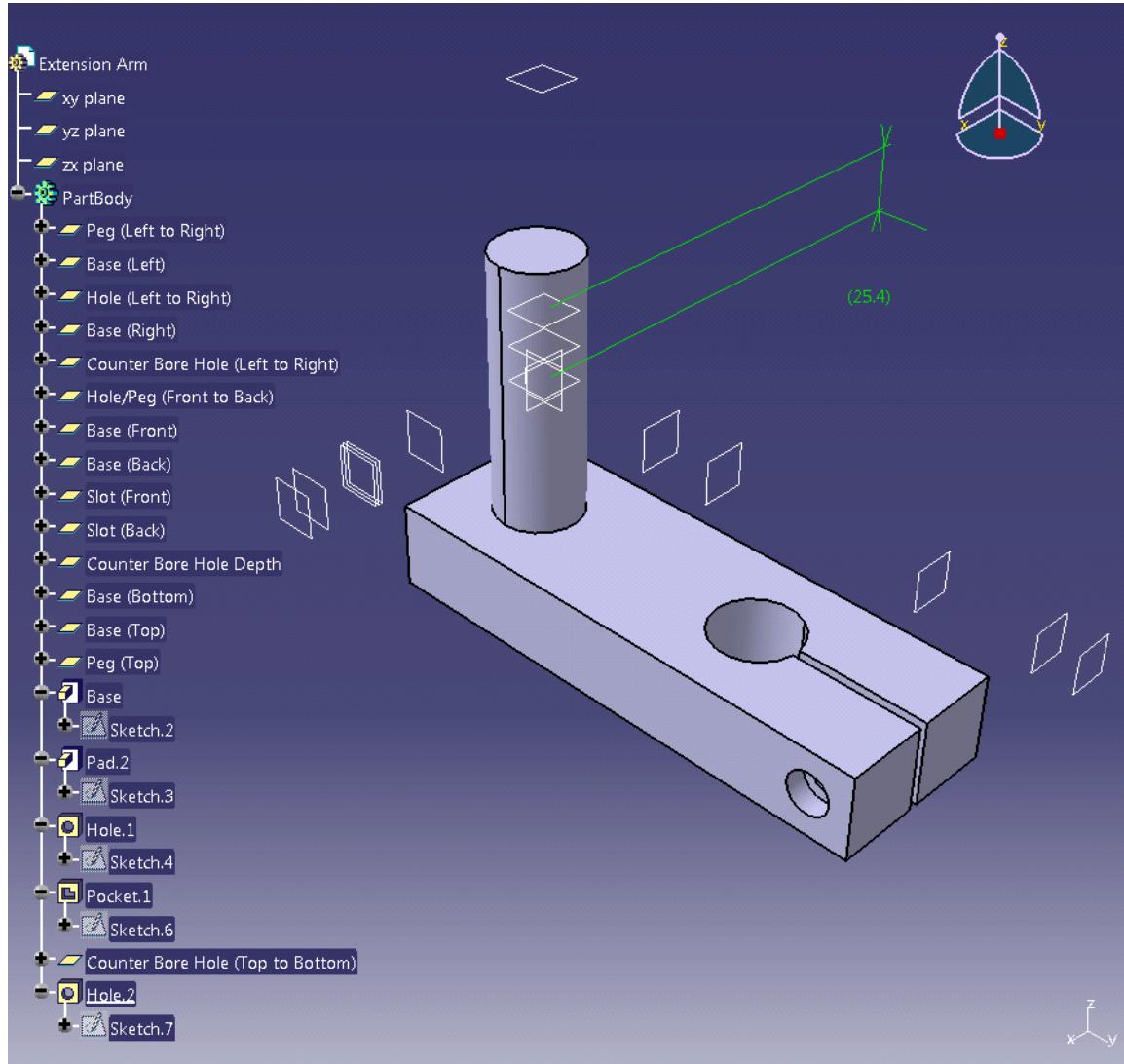
11:26 AM



# Assignment 46

Thursday, July 09, 2015

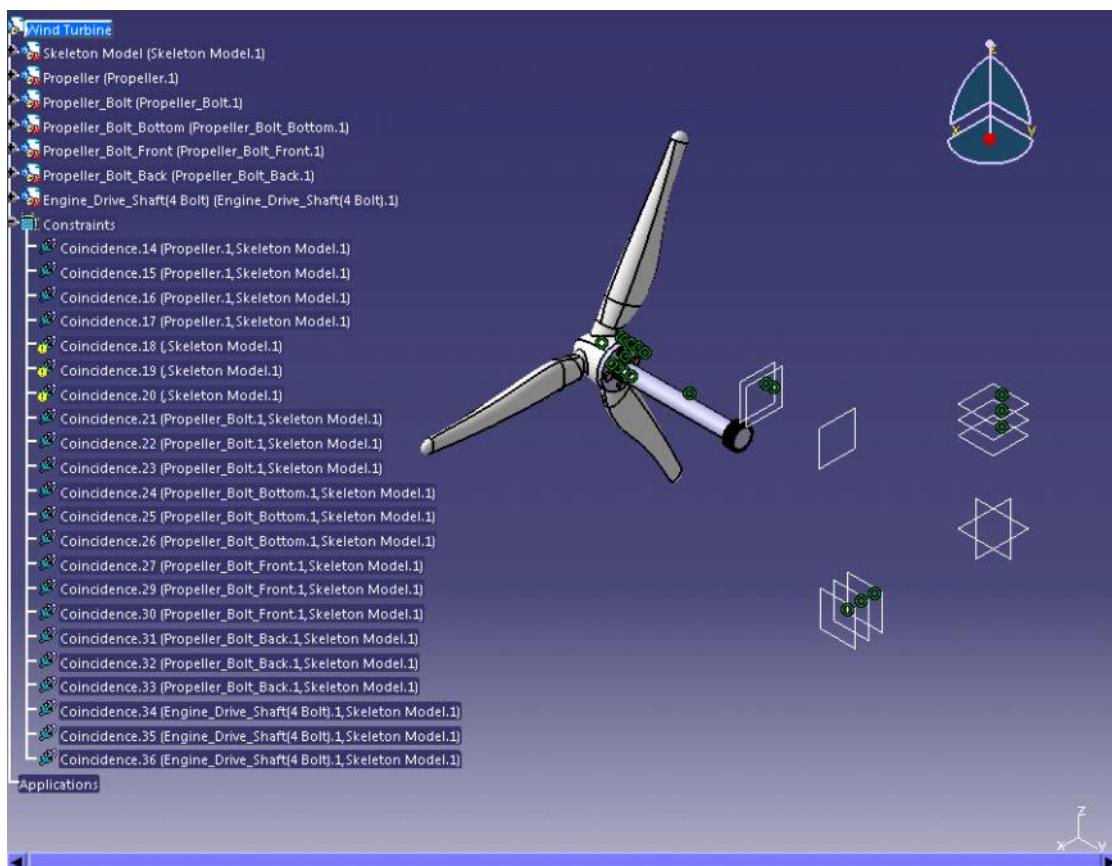
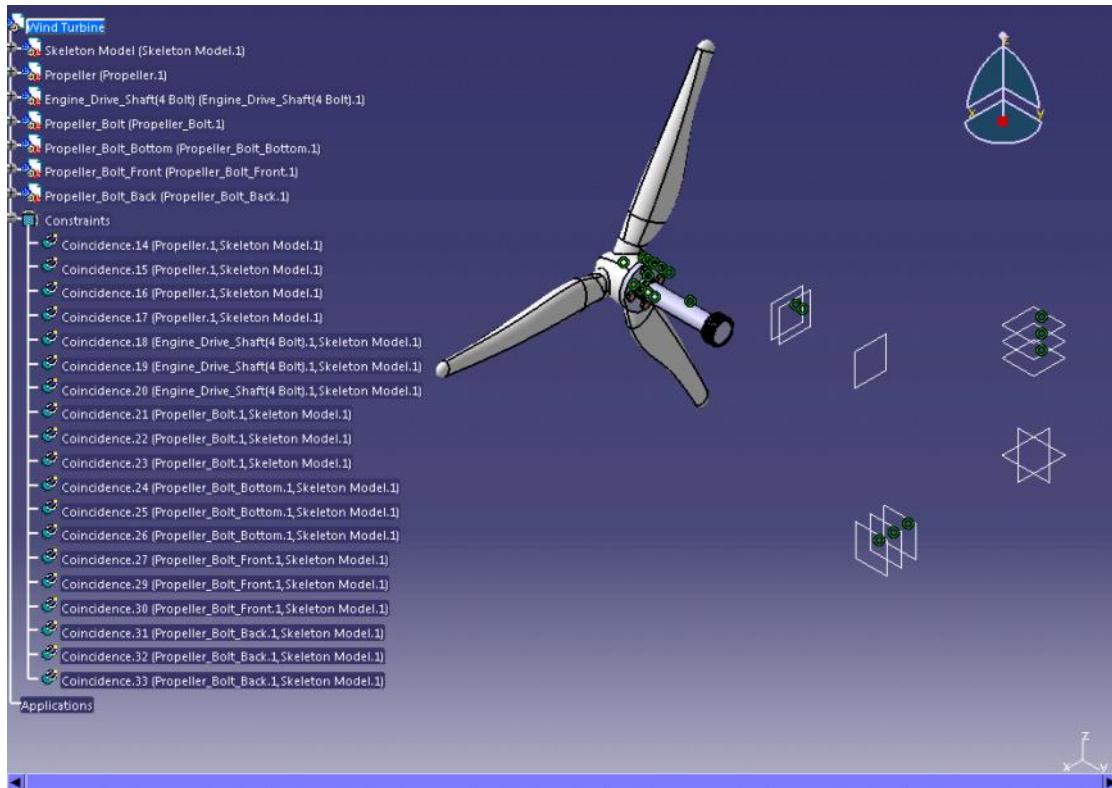
11:40 AM



# Assignment 47

Thursday, July 09, 2015

11:40 AM



# Quiz 1

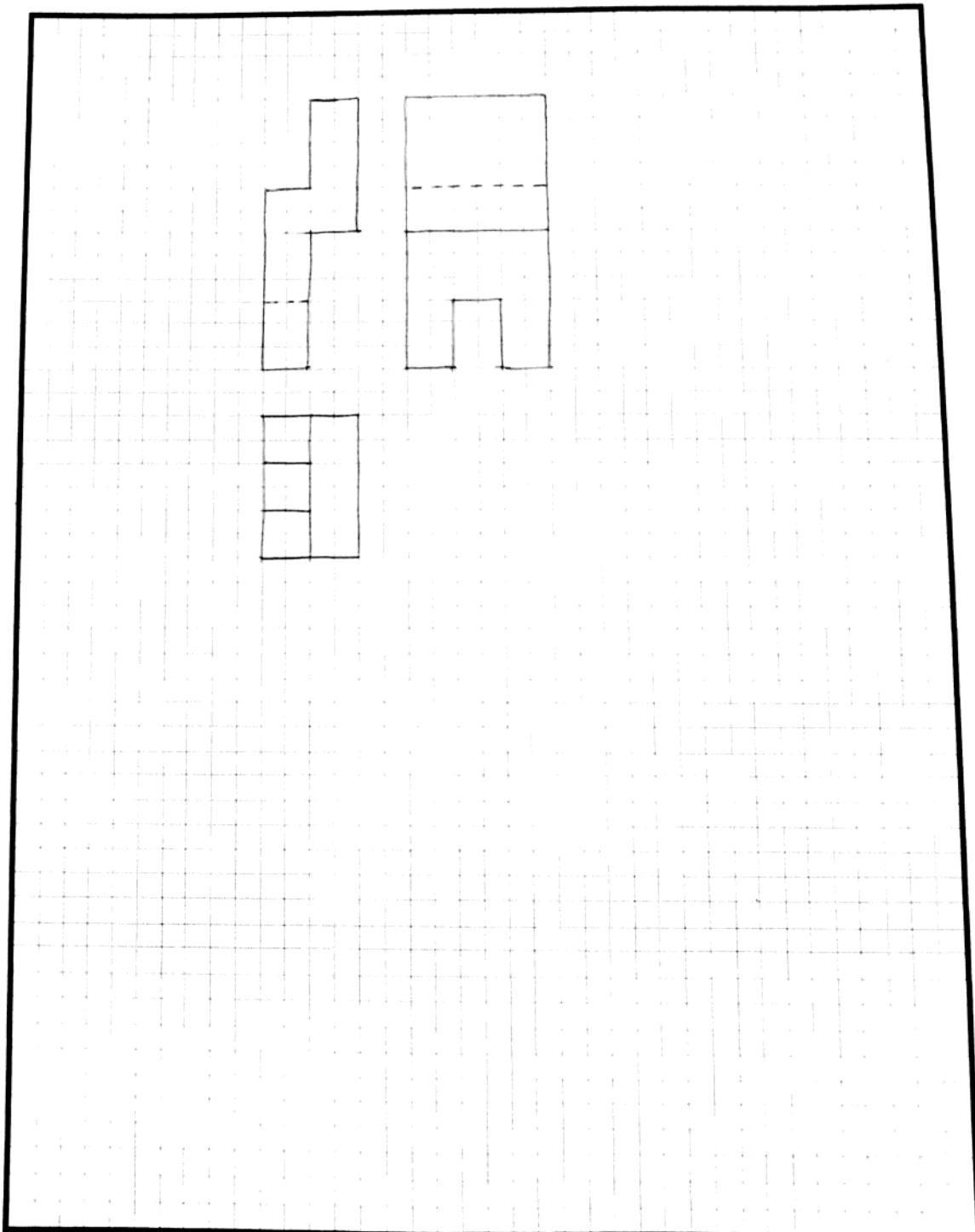
Thursday, July 09, 2015

6:22 AM

Name: Egley, Brecca

Assignment #: 0160109

Date: 6-19-15



# Quiz 2

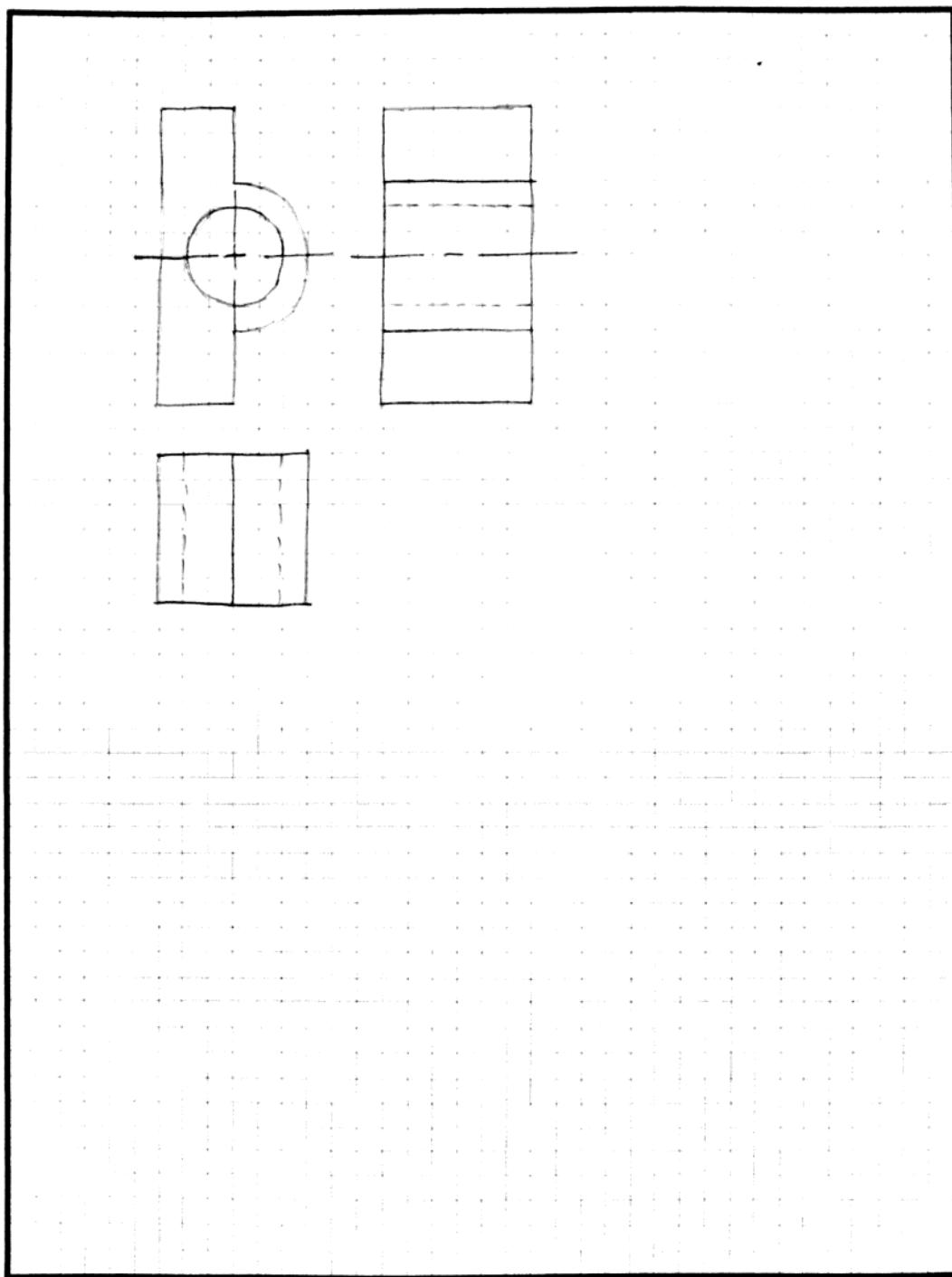
Thursday, July 09, 2015

11:58 AM

Name: Lay, Bryce

Assignment #: 016.0210

Date: 6-23-15



## Quiz 3

Thursday, July 09, 2015

11:58 AM

**You have submitted Chapter 8 for CGT 163**

From:  email10@eAcademicBooks.com

To: begley

Chapter 8 has been submitted to [miller02@purdue.edu](mailto:miller02@purdue.edu)

**You have submitted Chapter 8 for CGT 163**

From: [email19@eAcademicBooks.com](#)

To: [begley](#)

Chapter 8 has been submitted to [ksukumar@purdue.edu](mailto:ksukumar@purdue.edu)

# Quiz 4

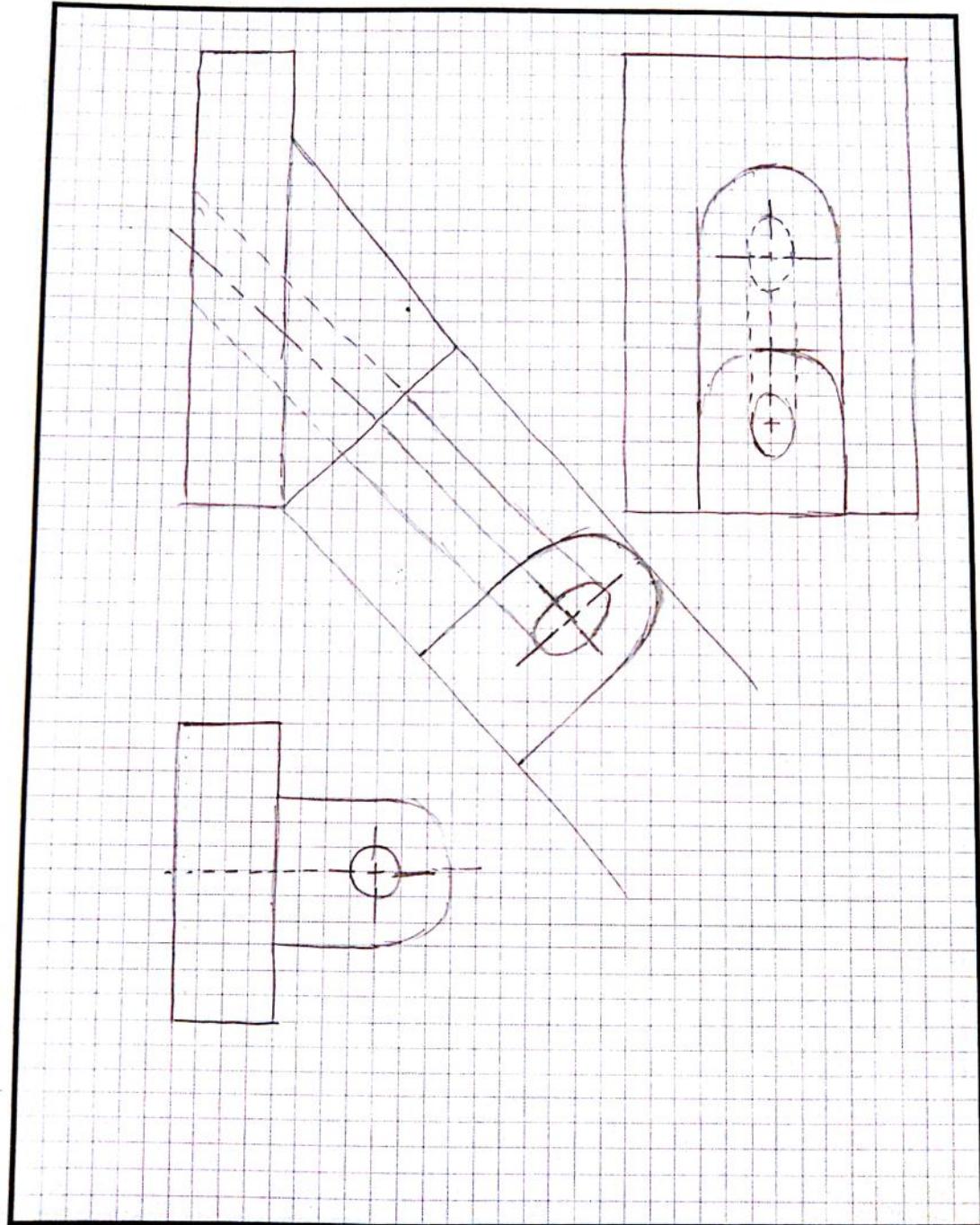
Thursday, July 09, 2015

11:58 AM

Name: Egley, Bryce

Assignment #: 0160410

Date: 6-29-15



# Quiz 5

Thursday, July 09, 2015

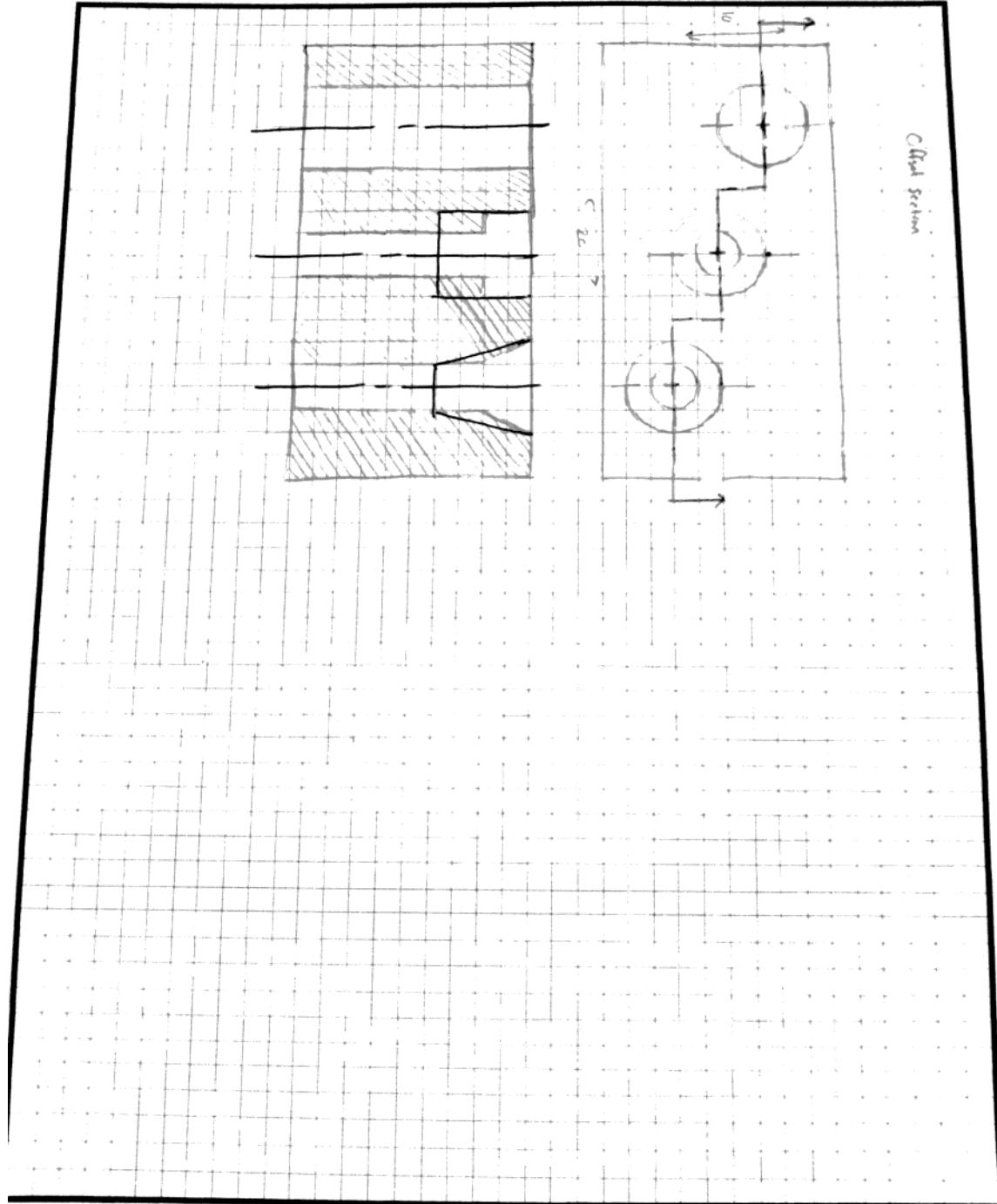
11:58 AM

Name: Egley, Bryce

Assignment #: 01Q0510

Date: 7/11/16

7



# Quiz 6

Thursday, July 09, 2015

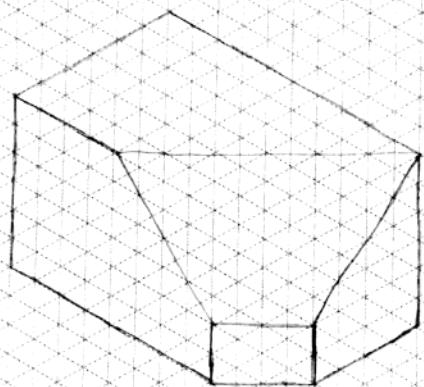
11:59 AM

Name: Encoded into Barcode

Assignment #: 61Q0610

10

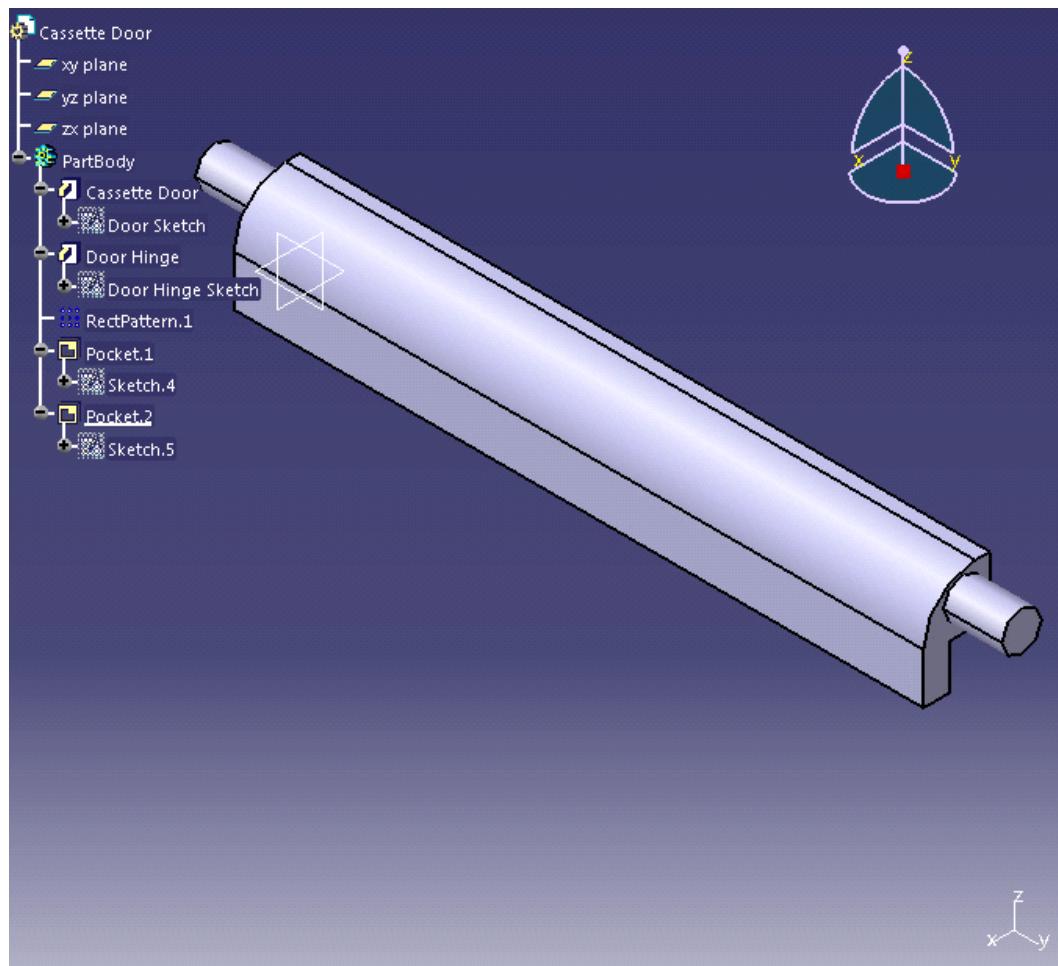
Date: 7/6/15



# Cassette Door

Friday, July 10, 2015

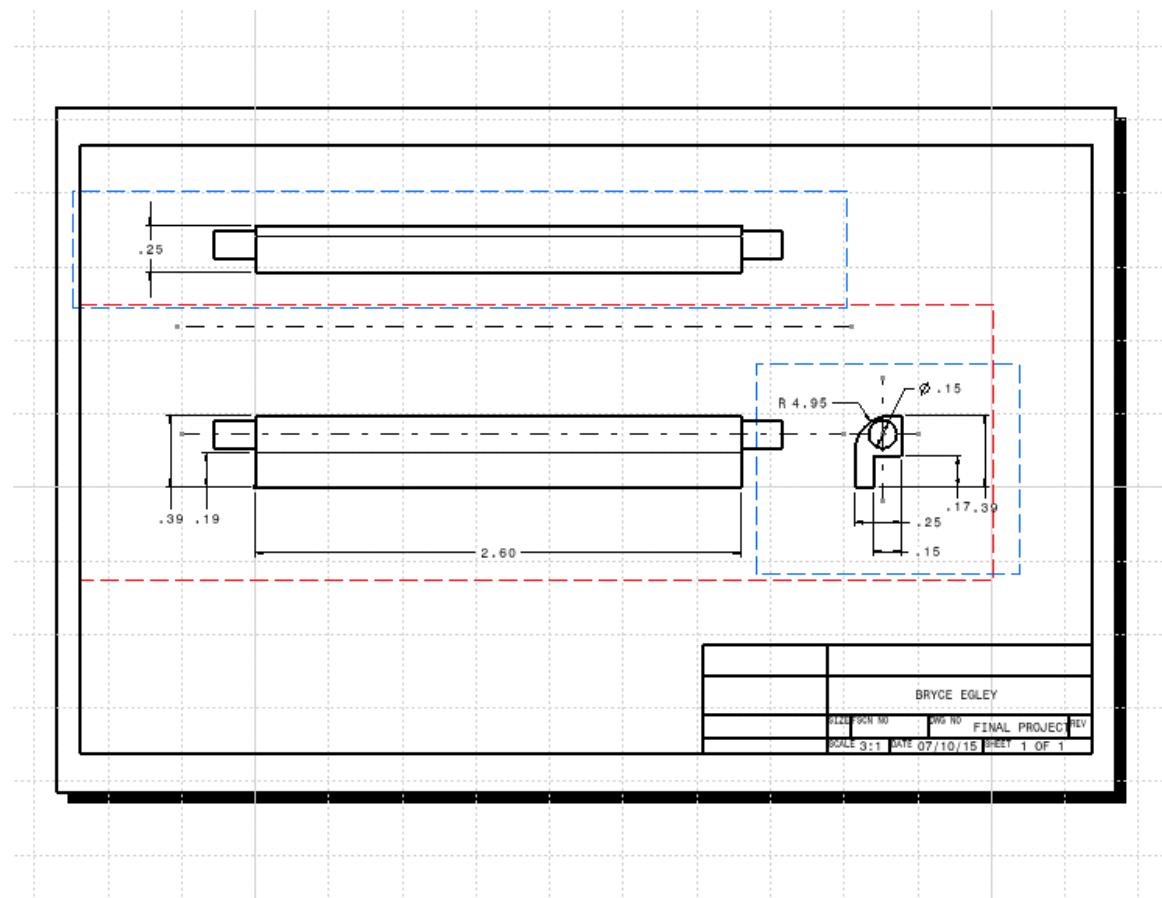
2:40 PM



# Cassette Door Sketch

Friday, July 10, 2015

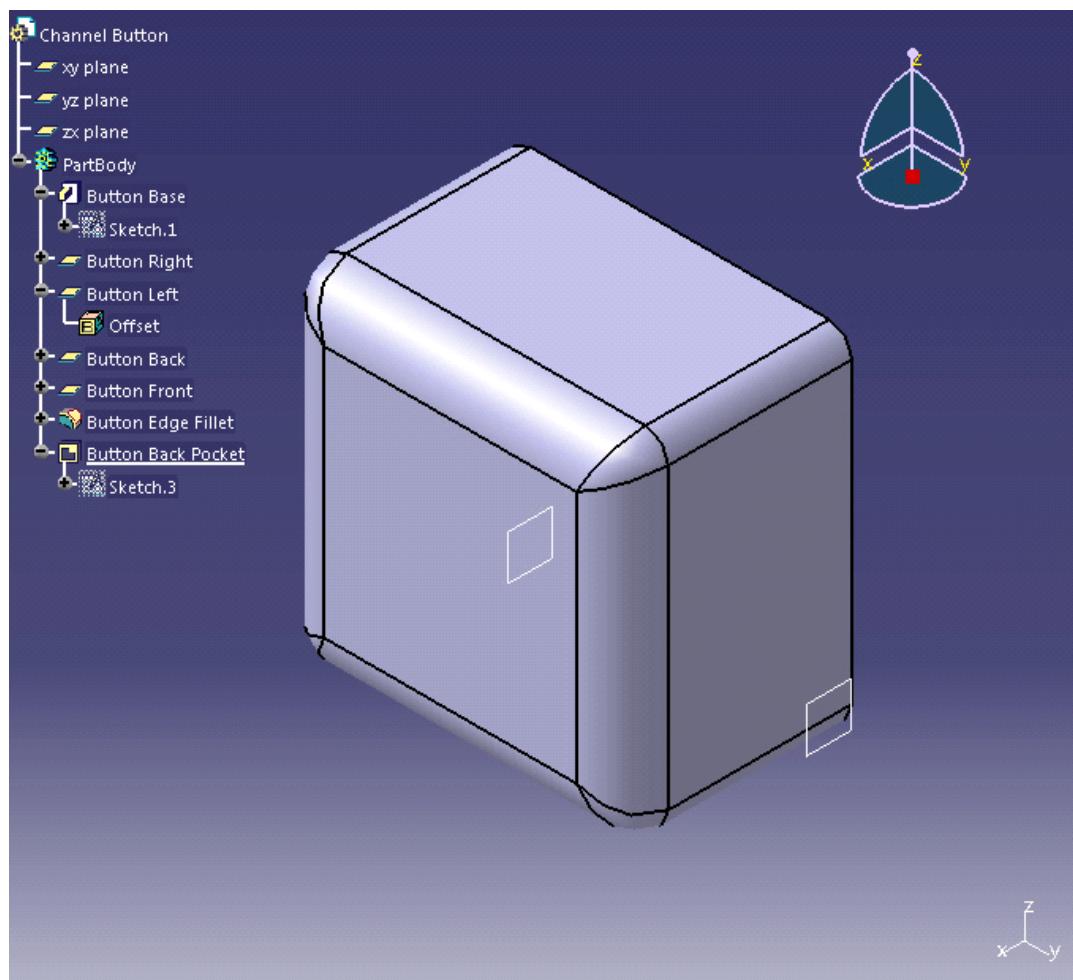
2:40 PM



# Channel Button

Friday, July 10, 2015

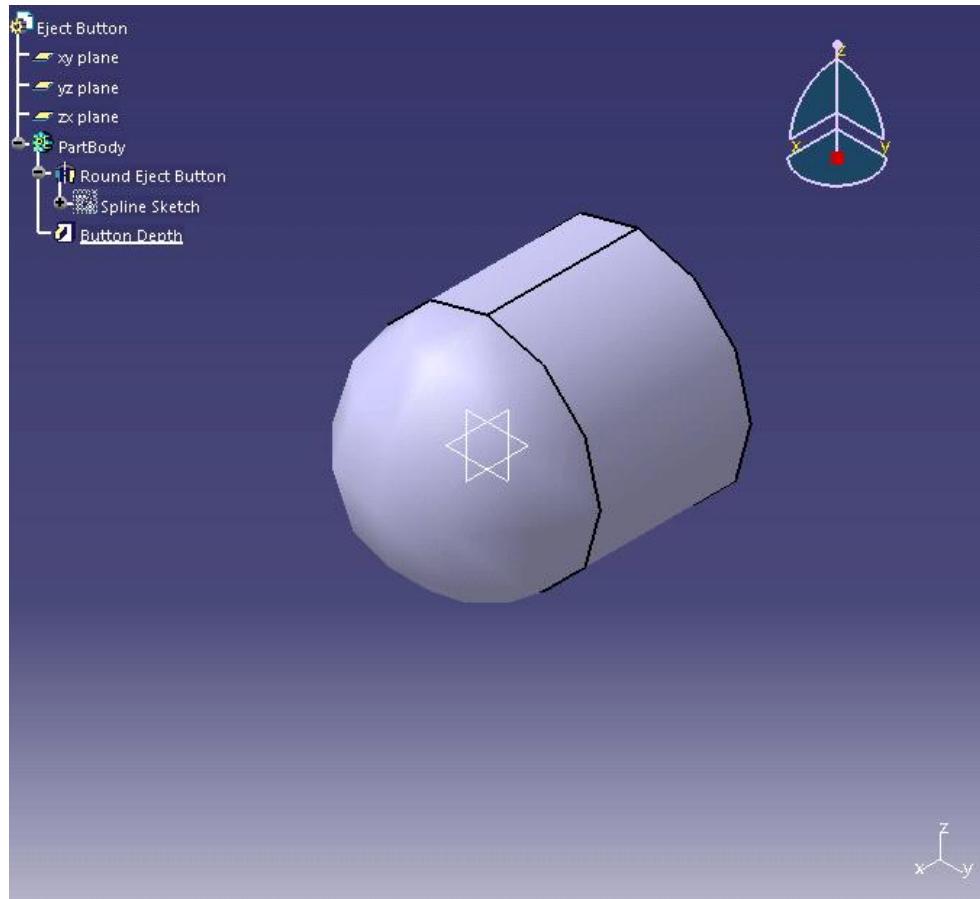
2:40 PM



# Eject Button

Friday, July 10, 2015

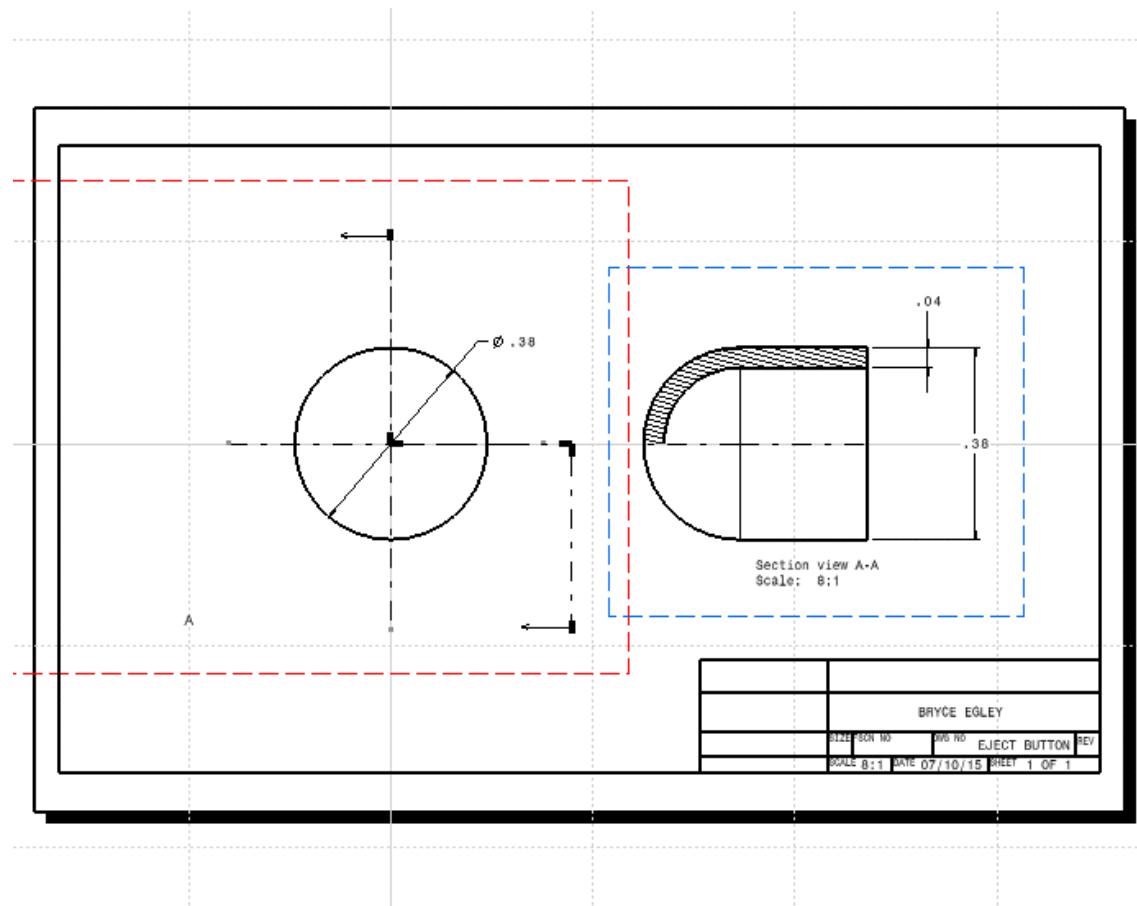
2:40 PM



# Eject Button Half Sketch

Friday, July 10, 2015

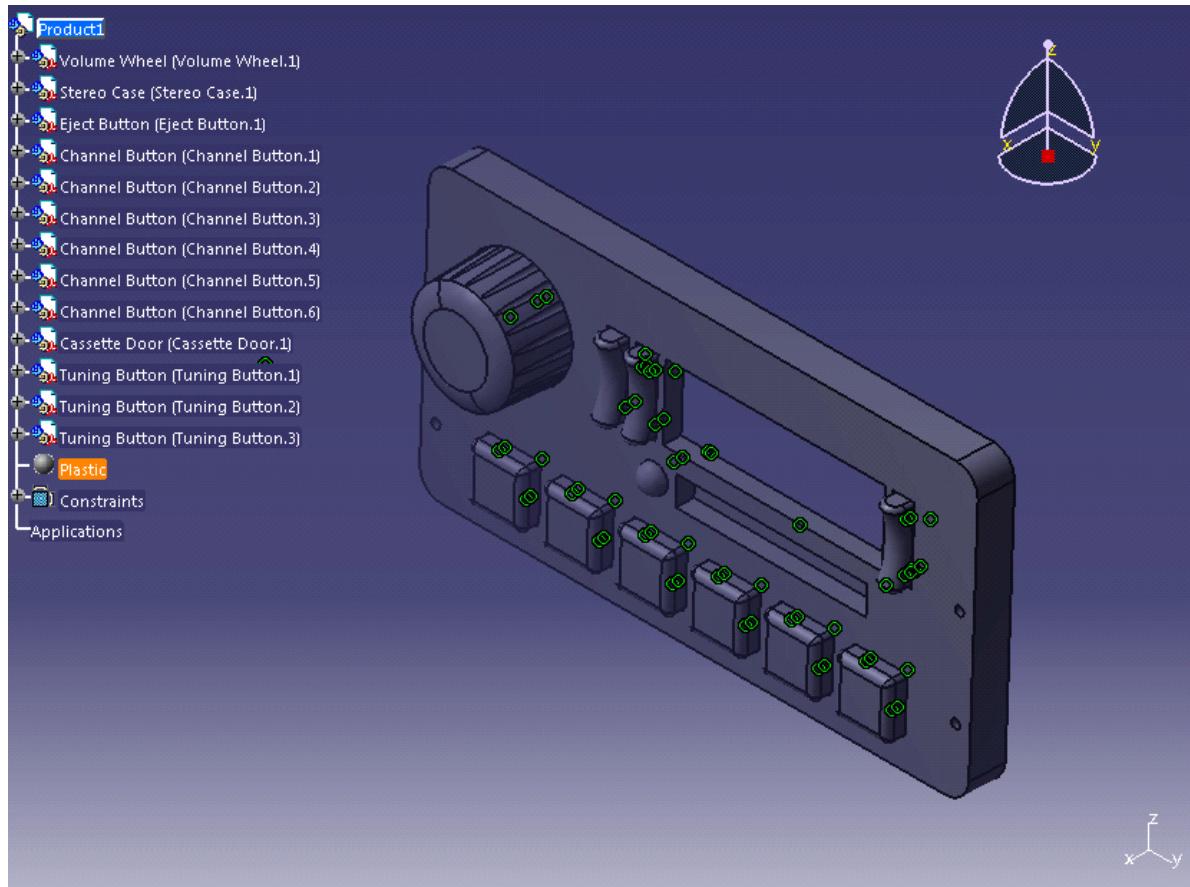
2:40 PM



# Stereo Case

Friday, July 10, 2015

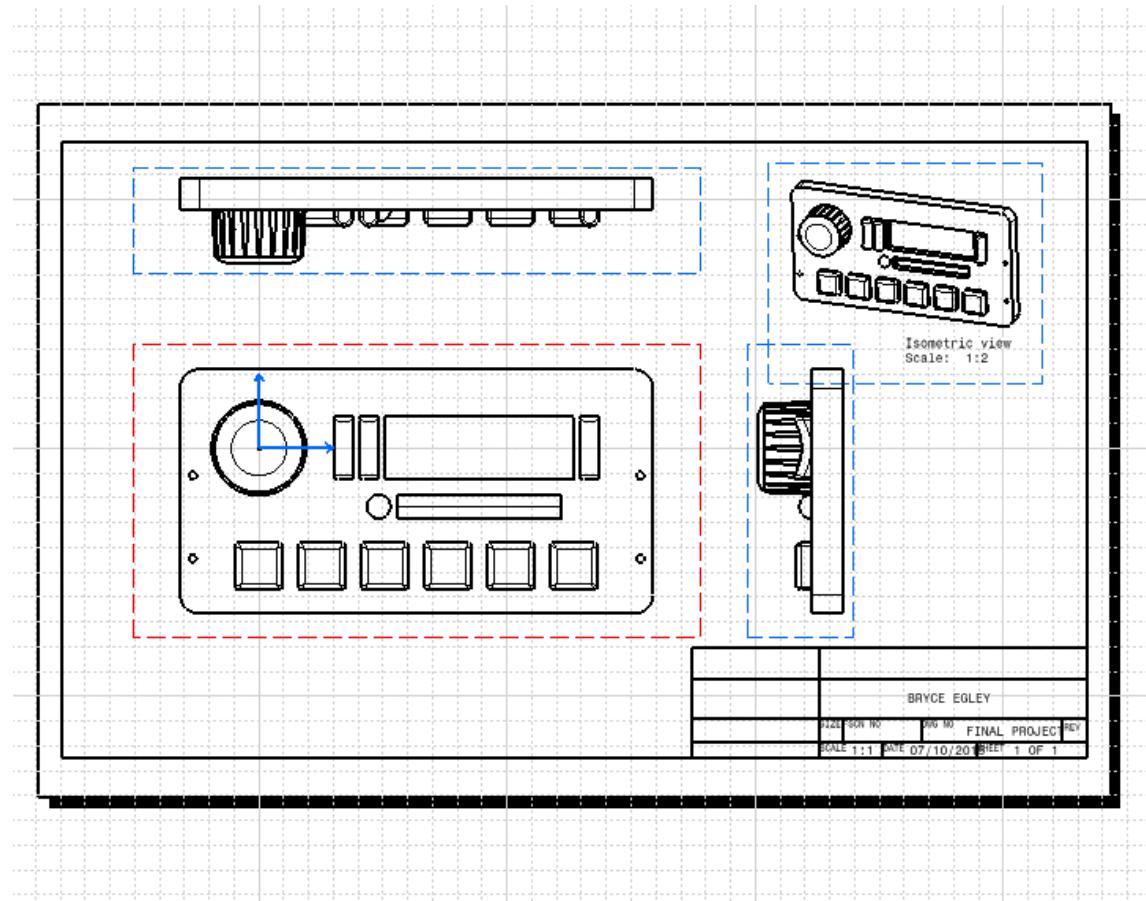
2:40 PM



# Stereo Case Sketch

Friday, July 10, 2015

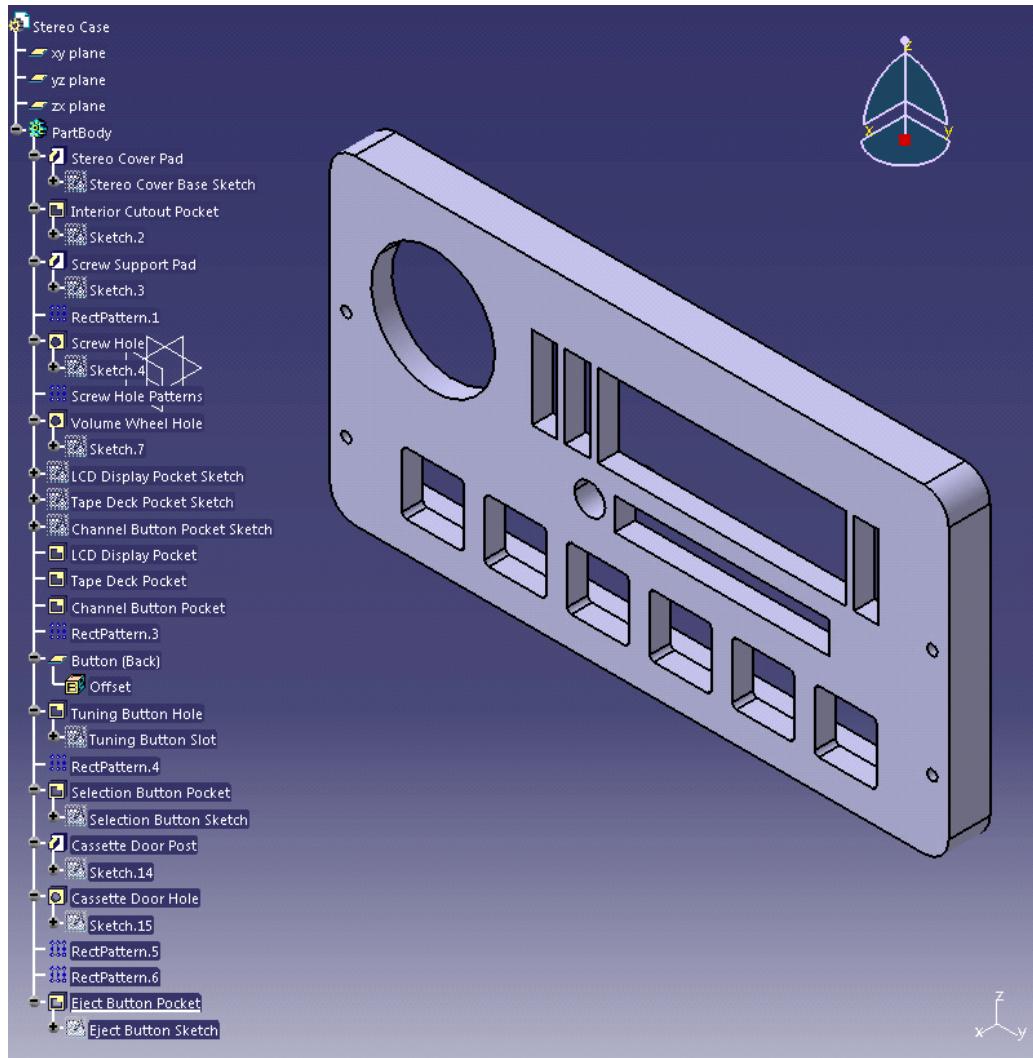
2:40 PM



# Stereo Cover

Friday, July 10, 2015

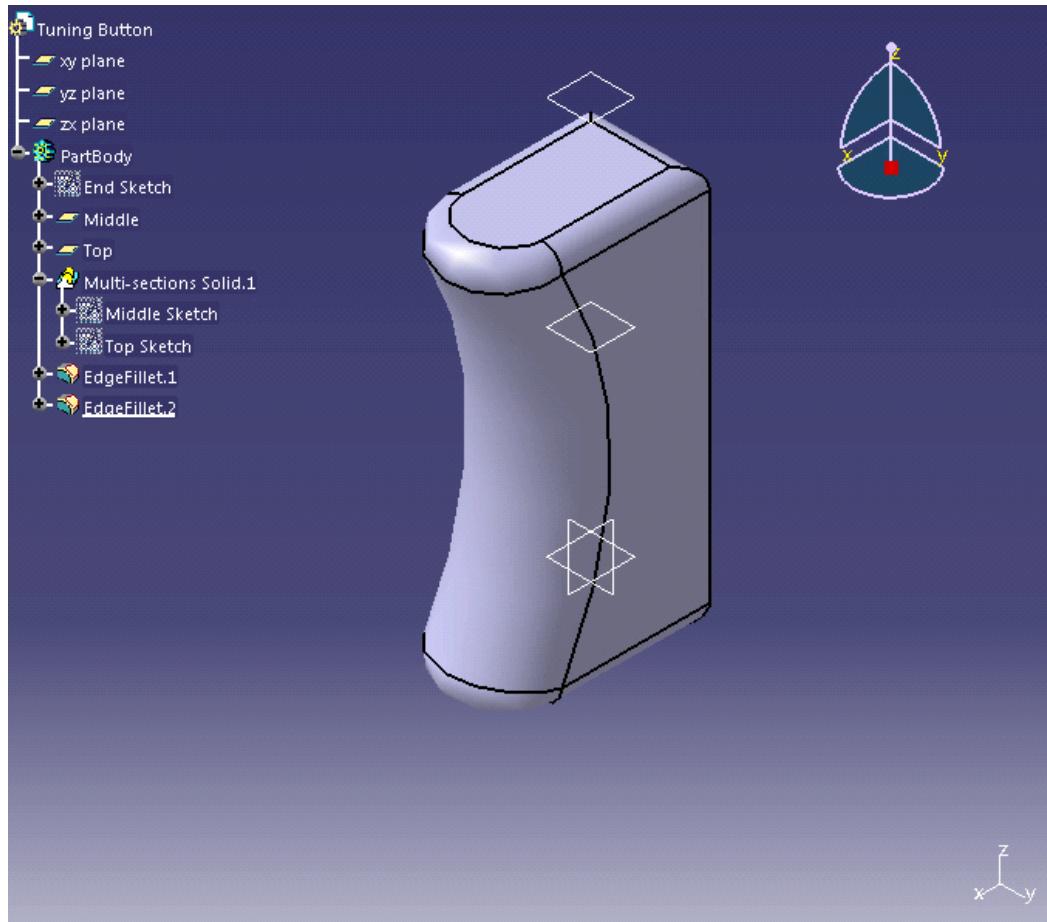
2:40 PM



# Tuning Button

Friday, July 10, 2015

2:41 PM



# Volume Wheel

Friday, July 10, 2015

2:41 PM

