SolidWorks Corporation: CSWA Sample Exam

Certified SolidWorks Associate (CSWA)

DISCLAIMER: This sample exam is provided to show you the format and approximate difficulty level of the real exam. It is not meant to give away the whole CSWA exam.

These questions are an example of what to expect in the CSWA exam.

How to take this sample exam:

1. To best simulate the conditions of the real test, it is best NOT to print this exam. Since the Virtual Tester client window runs concurrently with SolidWorks you must switch back and forth between the two applications. Keeping this document open and consulting it on your computer while running SolidWorks is the best method to simulate the real test conditions.

2. The multiple choice answers should serve as a check for you to ensure that your model is on the right track while completing this exam. If you do not find your answer in the selections offered then most likely there is something wrong with your model at that point.

3. Answers to the questions are on the last pages of this sample test document. There are also hints that can help save time during the exam.

4. If you can complete this exam and get at least 6 out of the 8 questions correctly in 90 minutes or less then you should be ready to take the real CSWA exam.

What you will need for the real CSWA exam:

1. A computer that is running SolidWorks 2011 or higher.

2. The computer must have a connection to the Internet.

3. A double-monitor is recommended but not necessary.

4. If you will be running the Virtual Tester client on a separate computer from the one that is running SolidWorks, make sure there is a way to transfer files from one computer to the other. You will be required to download SolidWorks files during the real test to be able to correctly answer some of the questions.

The following is the topic and question breakdown of the CSWA exam:

Drafting Competencies (3 Questions of 5 Points Each):
- Miscellaneous questions on drafting functionality

Basic Part Creation and Modification (2 Questions of 15 Points Each):
- Sketching
- Extrude Boss
- Extrude Cut
- Modification of Key Dimensions

Intermediate Part Creation and Modification (2 Questions of 15 Points Each):
- Sketching
- Revolve Boss
- Extrude Cut
- Circular Pattern

Advanced Part Creation and Modification (3 Questions of 15 Points Each):
- Sketching
- Sketch Offset
- Extrude Boss
- Extrude Cut
- Modification of Key Dimensions
- More Difficult Geometry Modifications

Assembly Creation (4 Questions of 30 Points Each):
- Placing of Base Part
- Mates
- Modification of Key Parameters in Assembly

Total Questions: 14
Total Points: 240

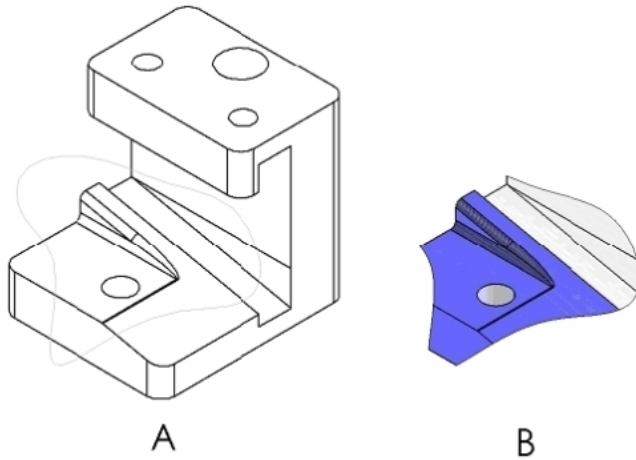**165 out of 240 points needed to pass the CSWA.**

The sample test below will show the basic format of the CSWA exam in three sections:

- Drafting Competencies
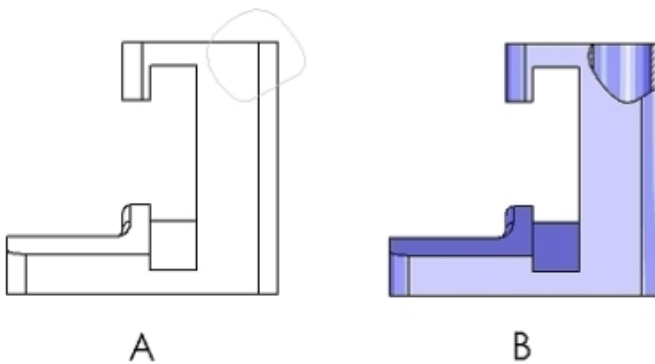- Part Modeling
- Assembly Creation

SAMPLE TEST

Drafting Competencies:

1. To create drawing view 'B' it is necessary to sketch a spline (as shown) on drawing view 'A' and insert which SolidWorks view type?
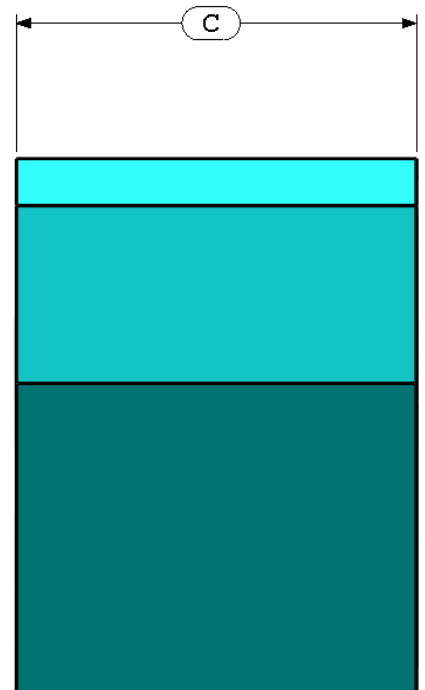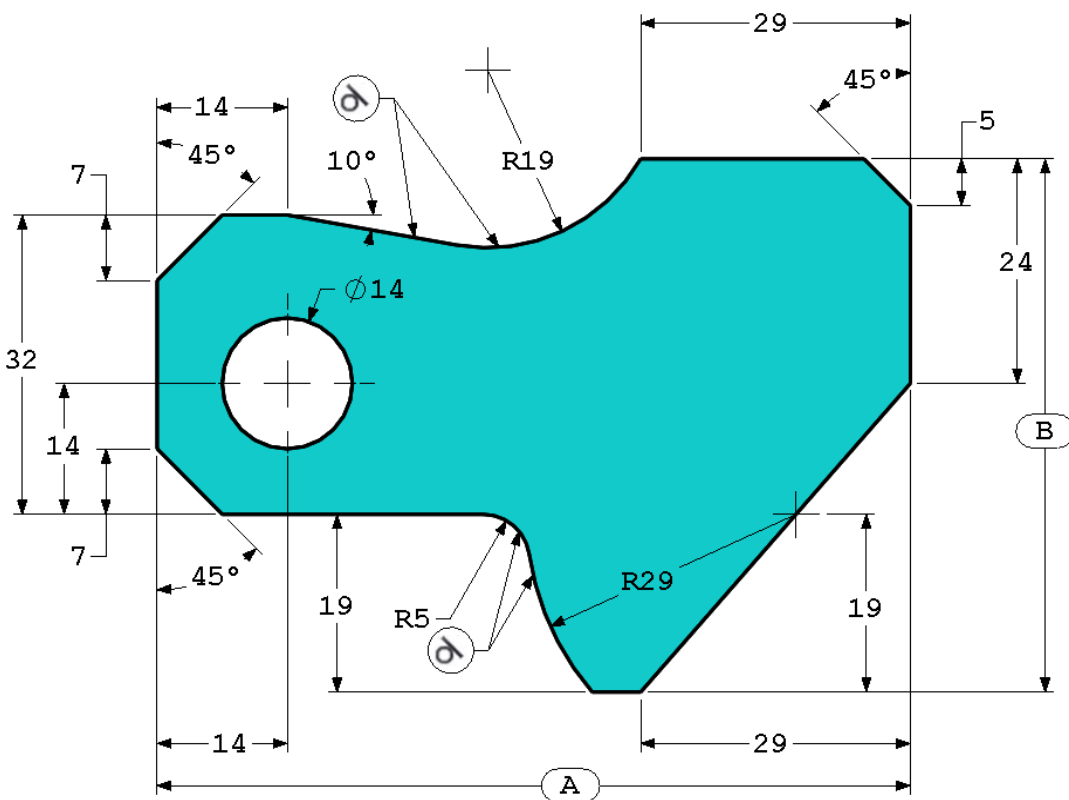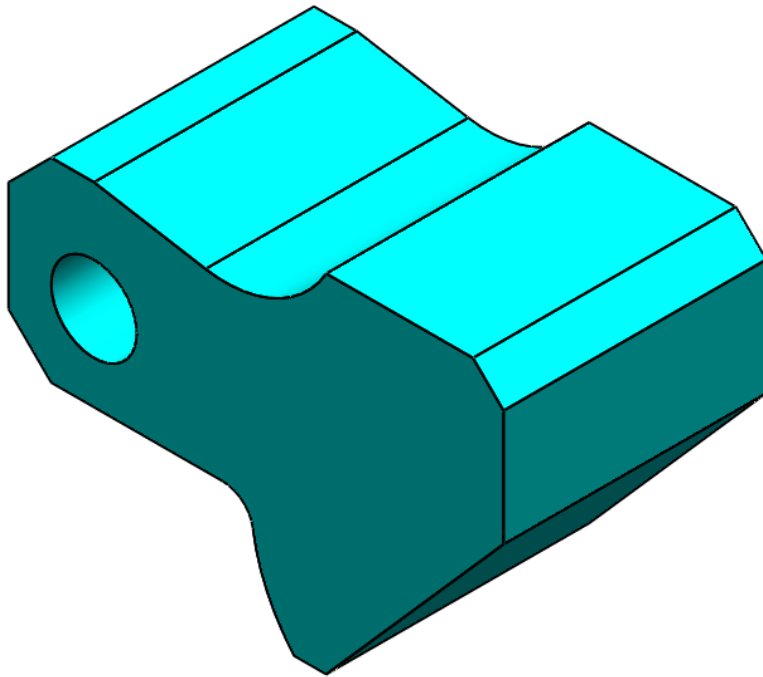

a) Section
b) Crop
c) Projected
d) Isometric

2. To create drawing view 'B' it is necessary to sketch a spline (as shown) on drawing view 'A' and insert which SolidWorks view type?

a) Aligned Section
b) Detail
c) Broken-out Section
d) Section

Part Modeling: (These images are to be used to answer Questions #3 – 4)

3. Part (Tool Block) - Step 1

Build this part in SolidWorks.
(Save part after each question in a different file in case it must be reviewed)

Unit system: MMGS (millimeter, gram, second)
Decimal places: 2
Part origin: Arbitrary
All holes through all unless shown otherwise.
Material: AISI 1020 Steel
Density = 0.0079 g/mm^3

A = 81.00
B = 57.00
C = 43.00

What is the overall mass of the part (grams)?

Hint: If you don't find an option within 1% of your answer please re-check your solid model.

   a) 1028.33
   b) 118.93
   c) 577.64
   d) 939.54

4. Part (Tool Block) - Step 2

Modify the part in SolidWorks.

Unit system: MMGS (millimeter, gram, second)
Decimal places: 2
Part origin: Arbitrary
All holes through all unless shown otherwise.
Material: AISI 1020 Steel
Density = 0.0079 g/mm^3

Use the part created in the previous question and modify it by changing the following parameters:
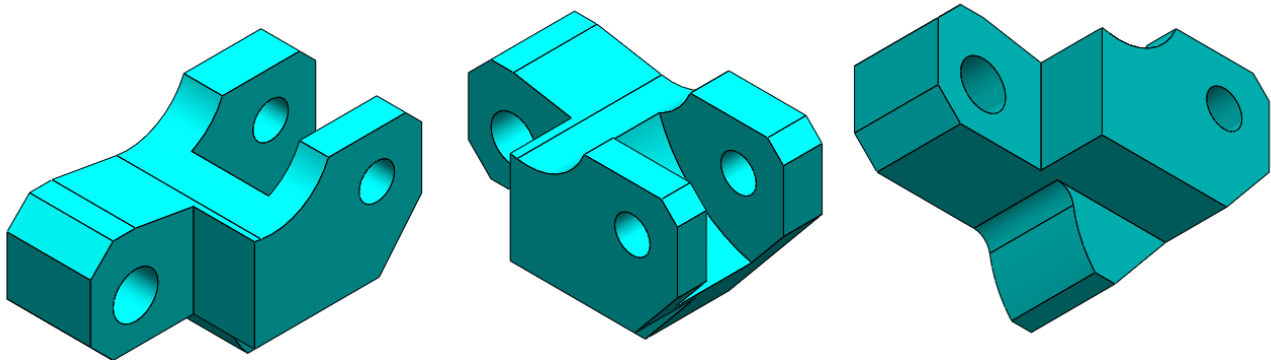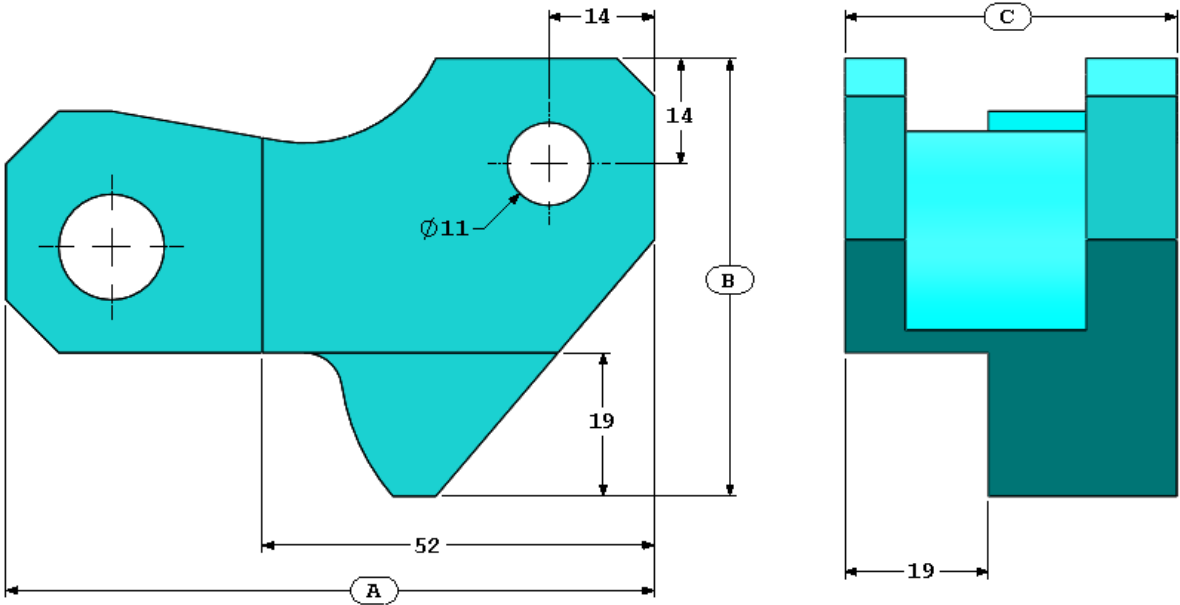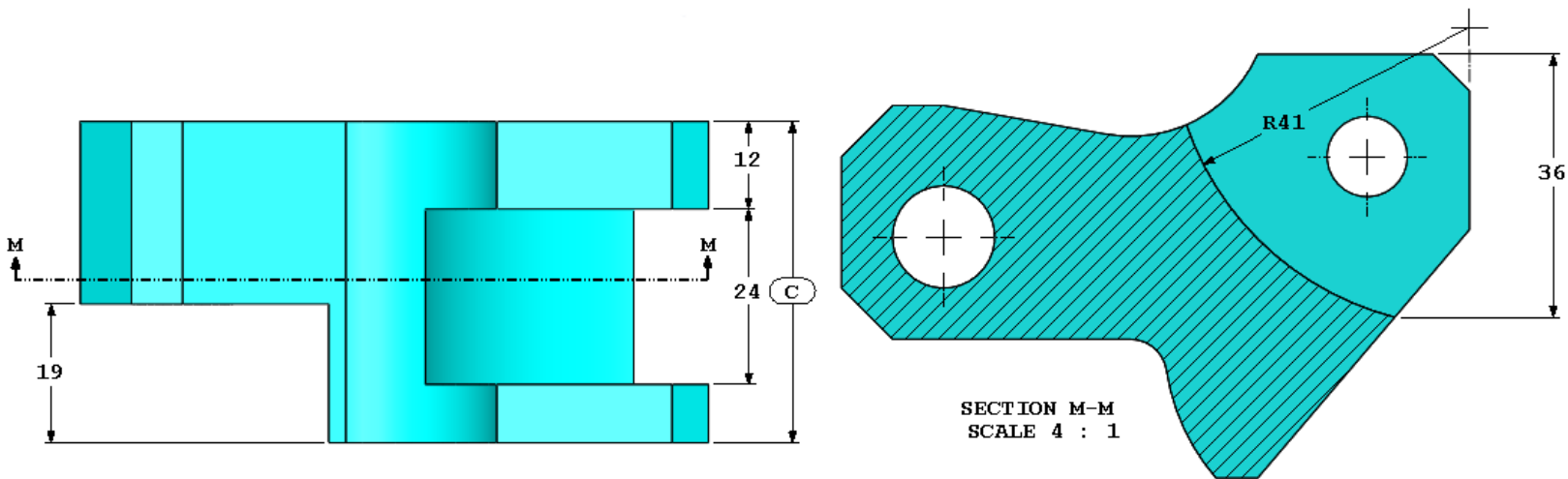
A = 84.00
B = 59.00
C = 45.00

Note: Assume all other dimensions are the same as in the previous question.

What is the overall mass of the part (grams)?

Part Modeling: (These images are to be used to answer Question #5)

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SECTION M-M
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(B)

19

52

(A)

(C)

19

5. Part (Tool Block) - Step 3

Modify this part in SolidWorks.

Unit system: MMGS (millimeter, gram, second)
Decimal places: 2
Part origin: Arbitrary
All holes through all unless shown otherwise.
Material: AISI 1020 Steel
Density = 0.0079 g/mm^3

Use the part created in the previous question and modify it by removing material and also by changing the following parameters:
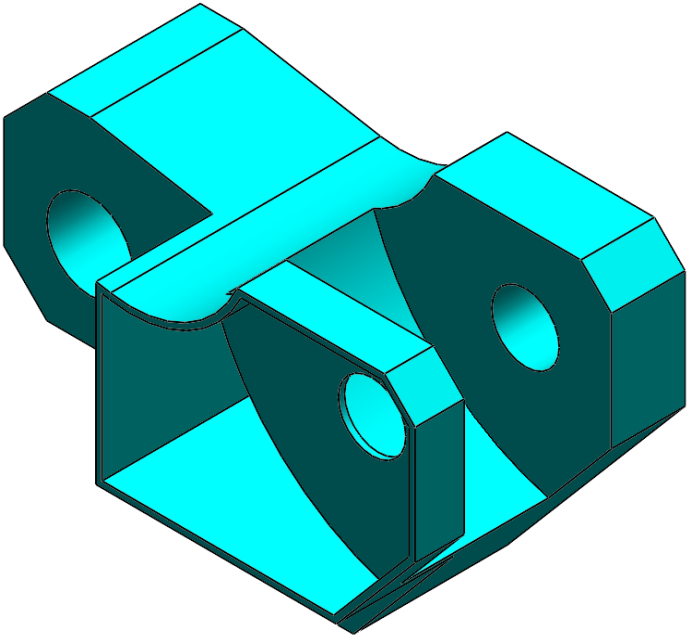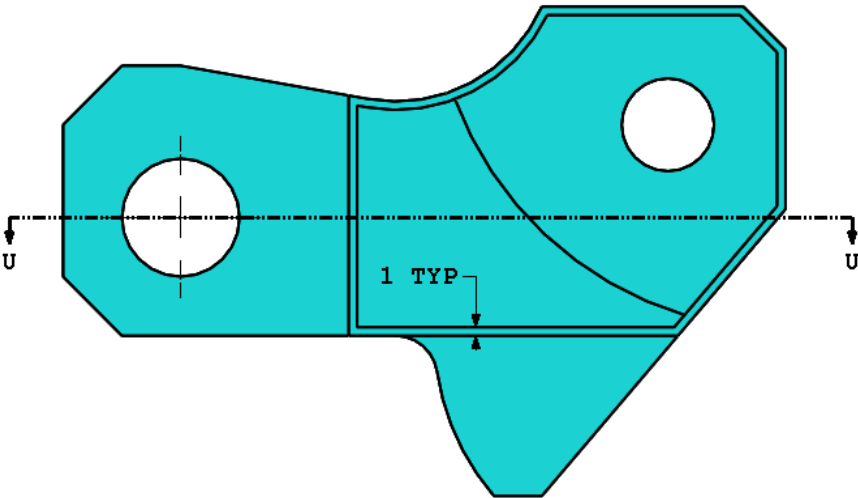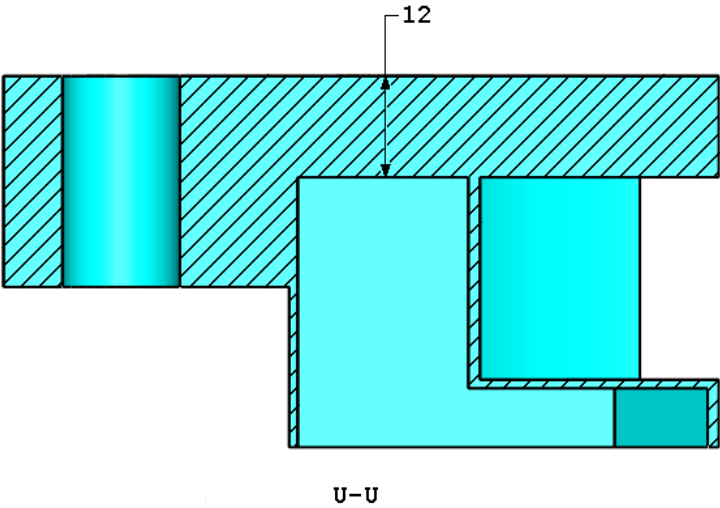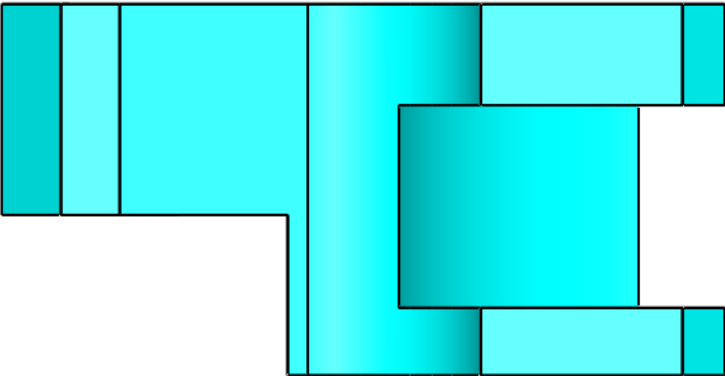
A = 86.00
B = 58.00
C = 44.00

What is the overall mass of the part (grams)?

Part Modeling: (These images are to be used to answer Question #6)

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6. Part (Tool Block) - Step 4

Modify this part in SolidWorks.

Unit system: MMGS (millimeter, gram, second)
Decimal places: 2
Part origin: Arbitrary
All holes through all unless shown otherwise.
Material: AISI 1020 Steel
Density = 0.0079 g/mm^3

Use the part created in the previous question and modify it by adding a pocket.

Note 1: Only one pocket on one side is to be added. This modified part is not symmetrical.

Note 2: Assume all unshown dimensions are the same as in the previous question #5.

What is the overall mass of the part (grams)?

Assembly Modeling: (These images are to be used to answer Question #7 and 8)
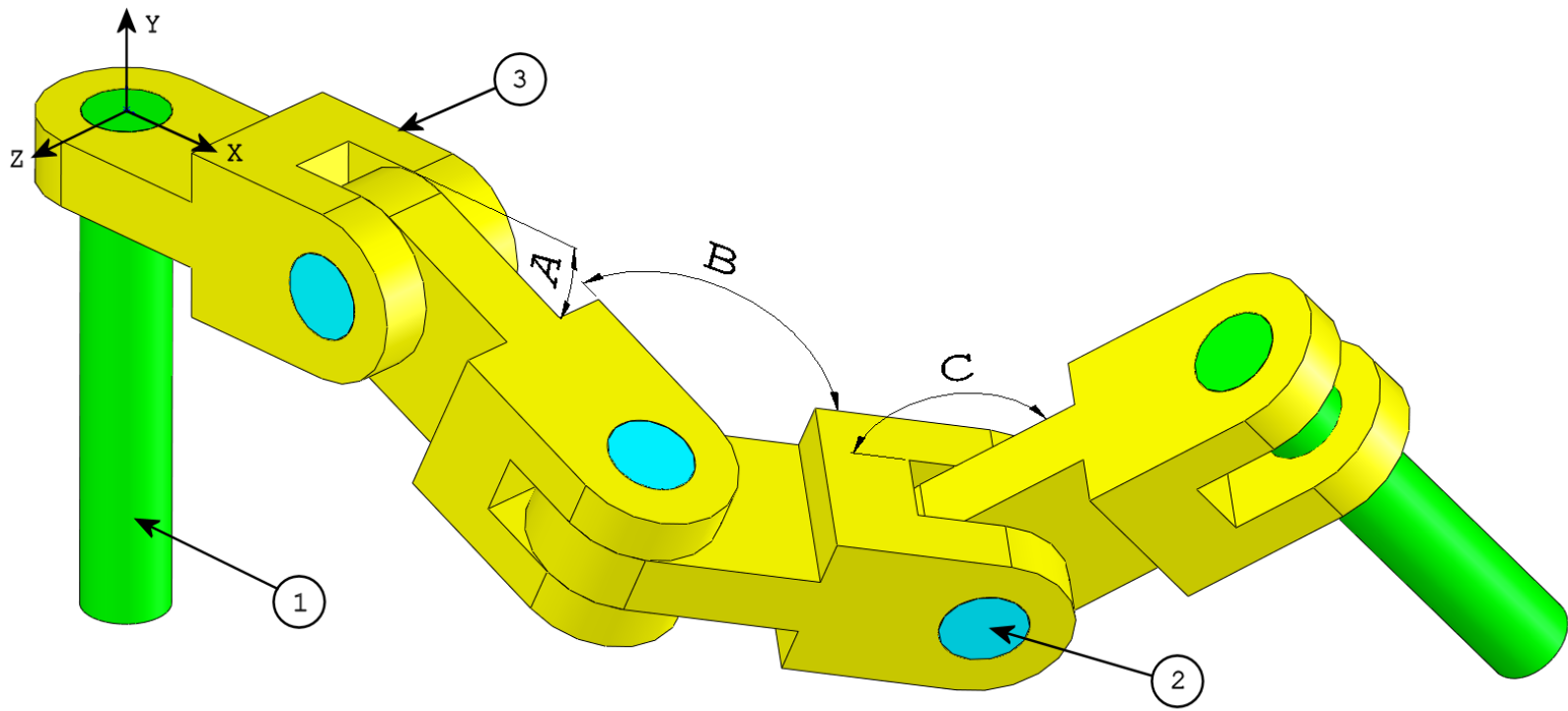
7. Build this assembly in SolidWorks (Chain Link Assembly)

It contains 2 long_pins (1), 3 short_pins (2), and 4 chain_links (3).

Unit system: MMGS (millimeter, gram, second)
Decimal places: 2
Assembly origin: Arbitrary

-Download the attached zip file and open it.

-Save the contained parts and open those parts in SolidWorks. (Note: If SolidWorks prompts "Do you want to proceed with feature recognition?" please click "No".)

-IMPORTANT: Create the Assembly with respect to the Origin as shown in isometric view. (This is important for calculating the proper Center of Mass)

-Create the assembly using the following conditions:

1. Pins are mated concentric to chain link holes (no clearance).

2. Pin end faces are coincident to chain link side faces.

A = 25 degrees
B = 125 degrees
C = 130 degrees

What is the center of mass of the assembly (millimeters)?

Hint: If you don't find an option within 1% of your answer please re-check your assembly.

a) X = 348.66, Y = -88.48, Z = -91.40
b) X = 308.53, Y = -109.89, Z = -61.40
c) X = 298.66, Y = -17.48, Z = -89.22
d) X = 448.66, Y = -208.48, Z = -34.64

8. Modify this assembly in SolidWorks (Chain Link Assembly)

Unit system: MMGS (millimeter, gram, second)
Decimal places: 2
Assembly origin: Arbitrary

-Using the same assembly created in the previous question modify the following parameters:

A = 30 degrees
B = 115 degrees
C = 135 degrees

What is the center of mass of the assembly (millimeters)?

Answers:

1. b) Crop
2. c) Broken-out Section
3. d) 939.54 g
4. 1032.32 g
5. 628.18 g
6. 432.58 g
7. a) X = 348.66, Y = -88.48, Z = -91.40
8. X = 327.67, Y = -98.39, Z = -102.91

Hints and Tips:

Hint #1: To prepare for the Drafting Competencies section of the CSWA, review all the drawing views that can be created. These commands can be found by opening any drawing and going to the **View Layout** command manager toolbar or in the menu **Insert > Drawing View**.
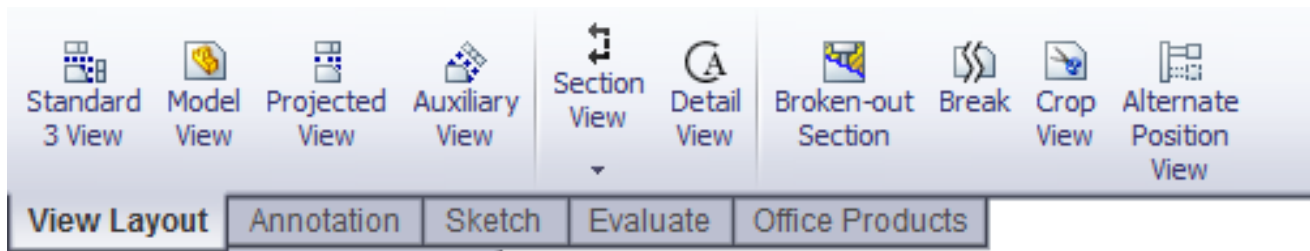
Hint #2: For a detailed explanation of each View type, access the individual feature Help section by selecting the Help icon in the Feature Manager for that View Feature:
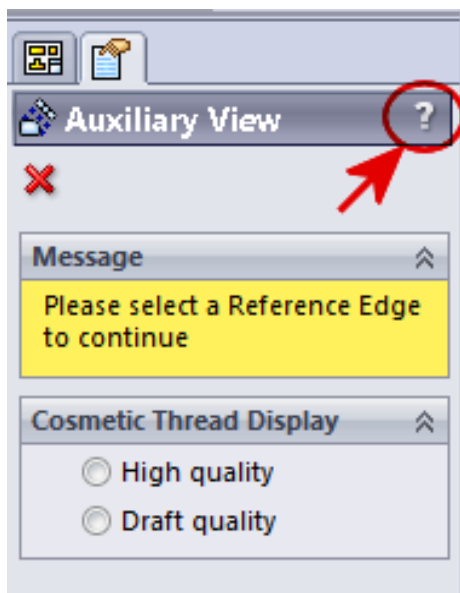
Hint #3: For a description and walk-through of the VirtualTester testing client, please go to these links:

- Starting the exam: http://www.virtualtester.com/index.php/support/starting_the_exam/
- During the exam: http://www.virtualtester.com/index.php/support/during_the_exam/
- Ending the exam: http://www.virtualtester.com/index.php/support/ending_the_exam/