

**Includes**  
3DEXPERIENCE Platform  
Certification Exams

# Official Guide to Certified **SOLIDWORKS® Associate Exams:** **CSWA, CSWA-SD, CSWA-S, CSWA-AM** SOLIDWORKS® 2023 - 2026



David C. Planchard  
CSWP, SOLIDWORKS Accredited Educator



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# CHAPTER 2 - CSWA

## INTRODUCTION AND DRAFTING

### COMPETENCIES

## Introduction

The SOLIDWORKS Design Associate (CSWA) exam is provided either in a single 3-hour segment, or 2 - 90 minute segments.

Part 1 of the CSWA Academic exam is 90 minutes, minimum passing score is 80, with 6 questions. There are two questions in **Basic Part Creation and Modification**, two questions in **Intermediate Part Creation and Modification** and two questions in **Assembly Creation and Modification**.

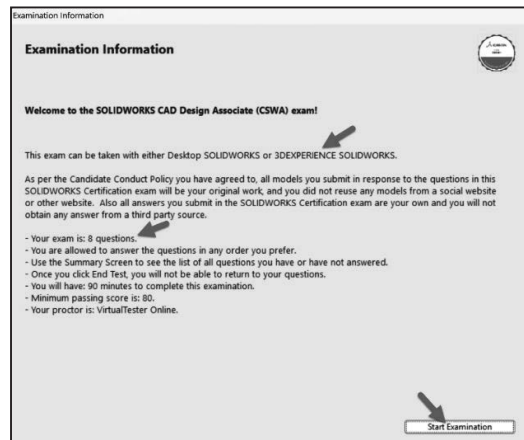
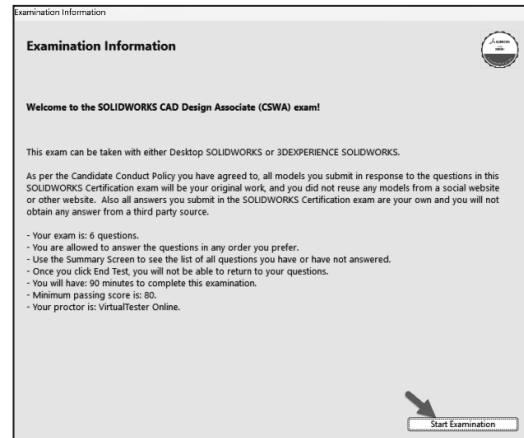
Part 2 of the CSWA Academic exam is 90 minutes, minimum passing score is 80 with 8 questions. There are three questions on the CSWA Academic exam in the **Drafting Competencies**, three questions in **Advanced Part Creation and Modification** and two questions in **Assembly Creation and Modification** category.

You need to pass both segments to obtain your CSWA Certification. Once you pass a segment, you will not have to take it again. You can take the segments in any order.

If you fail a segment, there is a 14-day waiting period before retaking the failed segment.

The CSWA 3-hour Academic exam consists of 14 questions worth a total of 240 points.

All exams cover the same material. You need to wait 14 days before you can retake the exam.



## CSWA Introduction and Drafting Competencies

If your school is an Academic Certification Provider, the provider can allocate free exam opportunities for Segment 1 & 2 of the CSWA exam.

An Academic Certification Provider is defined as an educational institution on subscription, with a minimum number of licenses (varies by country), that is eligible to administer CSWA, CSWP and other specialty exams.

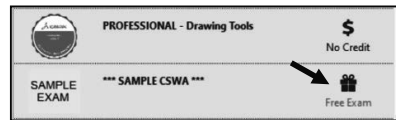
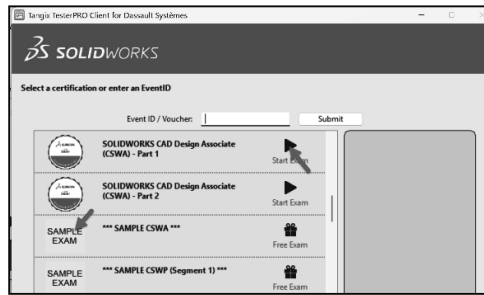
Visit the following link:

<https://3dexperience.virtualtester.com/#home>  
to take a free sample online CSWA exam. The 3DEXPERIENCE Certification Center Home page is displayed.

Create an account. Download the VirtualTester to create a VirtualTester account (UserID and password). A school email address is required.

There is a 30-day waiting period before retaking the sample online CSWA exam.

**Note:** The sample online SOLIDWORKS Design Associate exam is provided in the book (.pdf) format along with the SOLIDWORKS models, solutions, and additional practice exam problems.



- Sample Assembly Model
- Sample Assembly Model (Part 2)
- Question3 Glabal Variables
- Question3 No Global Variables
- Question4 Global Variables
- Question4 No Global Variables
- Question5 Global Variables
- Question5 No Global Variables
- Question6 Different way
- Question6 Glabal Variables
- Sample Exam Part1 - Use Rollback Bar
- Sample Exam Part2 - Use Rollback Bar
- Sample Exam Part3 - Use Rollback Bar
- Sample Exam Part4 - Use Rollback Bar
- Sample Exam Part5 - Use Rollback Bar
- Sample Exam Part6 - Use Rollback Bar
- Sample Exam Part7 - Use Rollback Bar

## Taking the CSWA Exam (Segment 1 or 2)

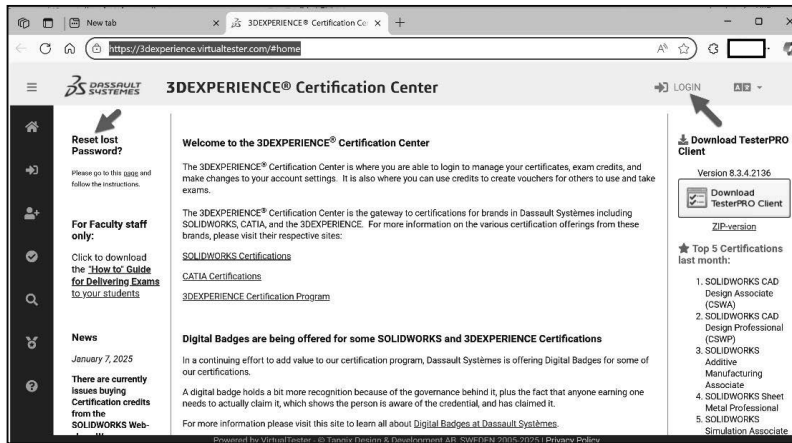
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The 3DEXPERIENCE Certification Center Home page is displayed.

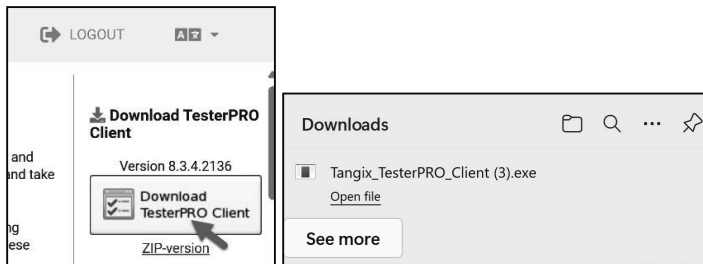
The 3DEXPERIENCE Certification Center is where students are able to log in to take their certification opportunities, manage their certificates, address their digital badges, and make changes to their account settings.

If your school is an Academic Provider, the provider can allocate free CSWA Segment 1 and Segment 2 exam opportunities.

Log in to 3DEXPERIENCE Certification Center Home page. Click the **LOGIN** icon.



Download the TesterPRO Client to your desktop.



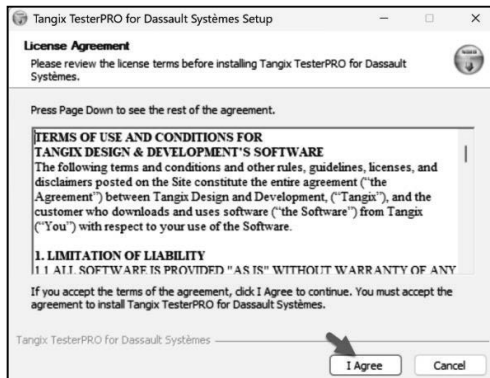
Un-zip the TesterPRO Client.

Read the License Agreement.

Agree to the Candidate Conduct Policy.

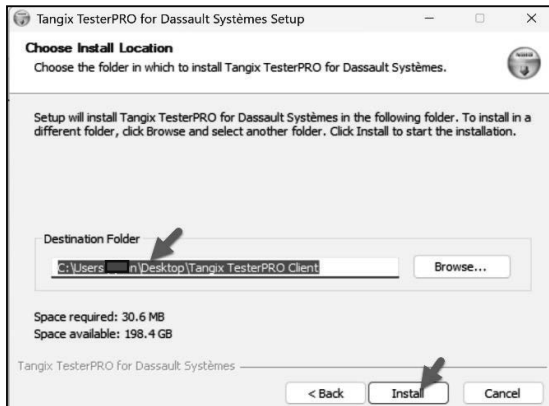
# CSWA Introduction and Drafting Competencies

Click **I Agree**.

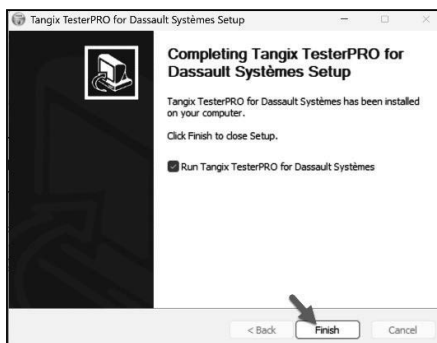


Install the TesterPRO Client.

Click **Install**.



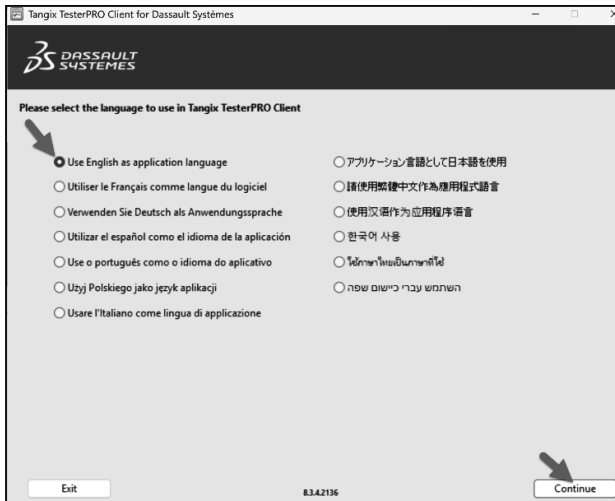
Click **Finish**.



View the available languages.

Select Test Language.

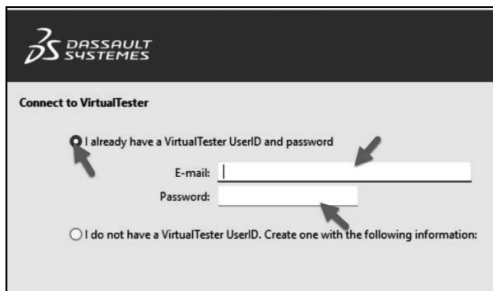
Click **Continue**.



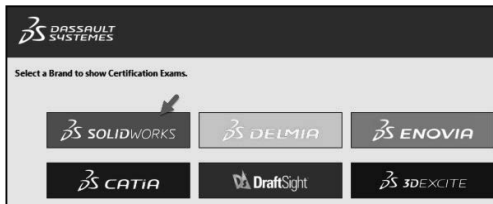
Create an account. If you already have an account, select **“I already have a VirtualTester UserID and password”**.

Enter your **school email address**.

Enter **password**. Click **Continue**.



Select **SOLIDWORKS**.

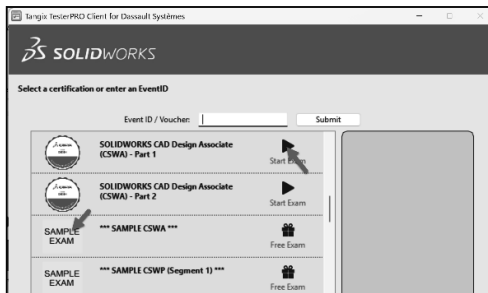


## CSWA Introduction and Drafting Competencies

### Select **SOLIDWORKS CAD Design Associate (CSWA) - Part 1**.

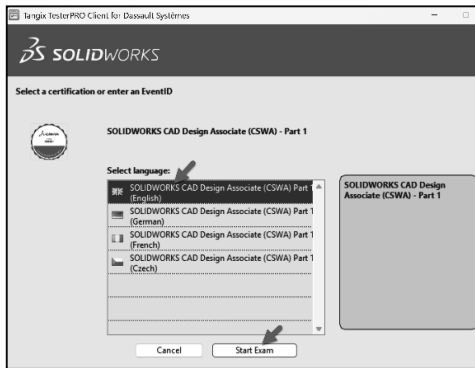
This will depend on the exam opportunity given by the Academic Provider.

Click **Start Exam**.



Select **language**.

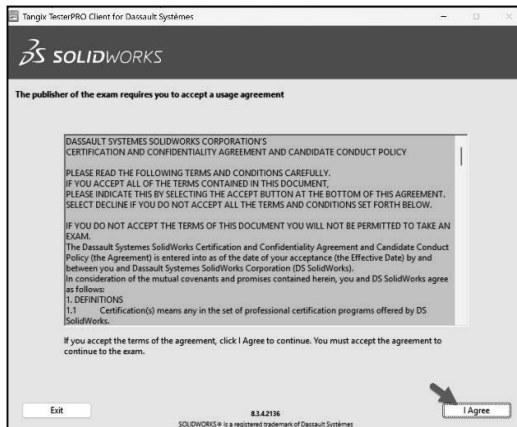
Click **Start Exam**.



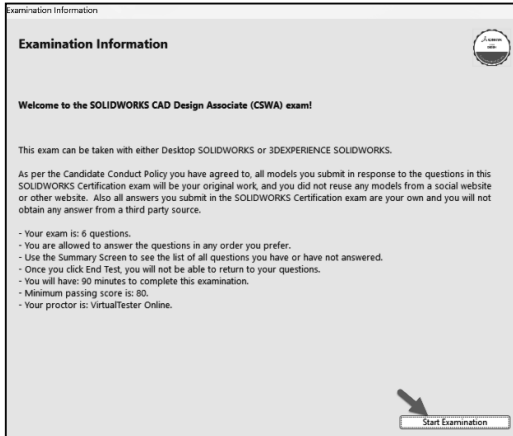
Click **Yes**.

Read the instructions. Agree to the Confidentiality Agreement and Candidate Conduct Policy.

Click **I Agree**.

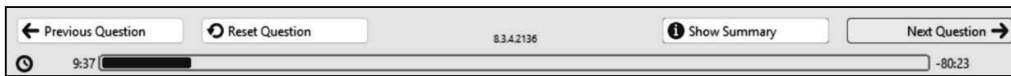


Click **Start Examination**.

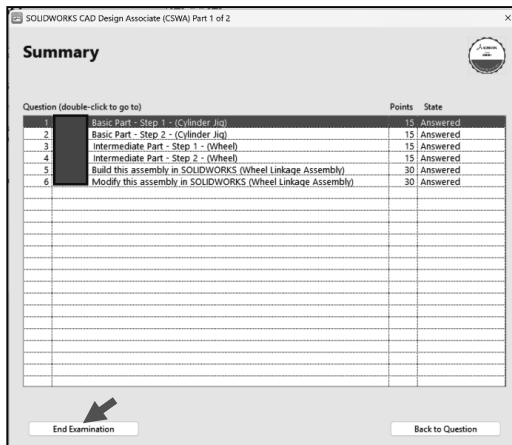


You are allowed to answer the questions in any order you prefer.

Use the Summary Screen during the exam to view the list of all questions you have or have not answered.



When finished, click **End Examination**.

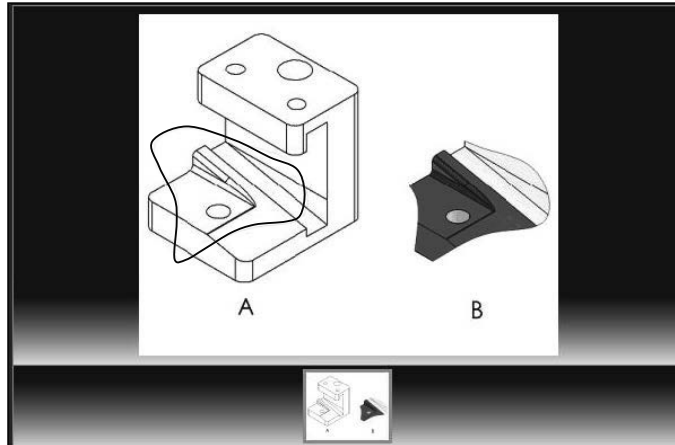


The exam is automatically graded and the final grade is displayed to the student. The exam grade is provided directly to the Academic Provider. Minimum passing score is 80 points. **Note:** Individual questions results are not provided. The number of wrong and correct questions is displayed. The results will display the strong Topics areas and Topic areas to study.

## Objectives

Drafting Competencies is one of the categories on the CSWA exam.

There are three questions (total) on the CSWA exam in the Drafting Competencies category. Each question is worth five (5) points. Drafting Competency questions are addressed in part 2 of the CSWA exam.



In the Drafting Competencies category of the exam, you are **not required** to create or perform an analysis on a part, assembly, or drawing but you are required to have general drafting/drawing knowledge and understanding of various drawing view methods.

### Drafting Competencies Category:

- Read the question.
- Understand the question.
- Identify various drawing views:
  - Projected view.
  - Exploded view.
  - Auxiliary view.
  - Section view.
  - Removed Section view.
  - Detail view.
  - Broken-out Section view.
  - Break view.
  - Crop view.
  - Aligned Section view.
  - Alternate Position view.


# Procedure to Create a Named Drawing view

You need the ability to identify the procedure to create the following named drawing views: Projected, Auxiliary, Exploded, Section, Aligned Section, Broken-out Section Break, Removed Section, Crop and Alternate Position.

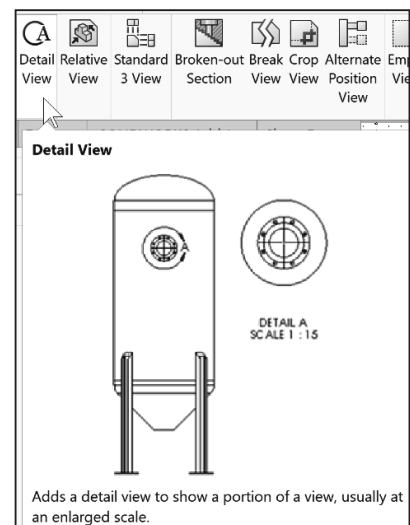
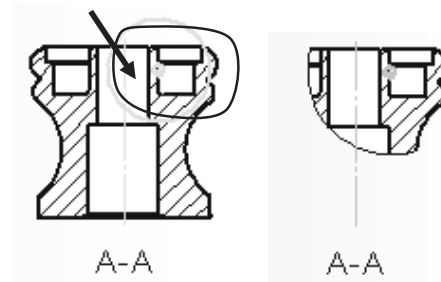
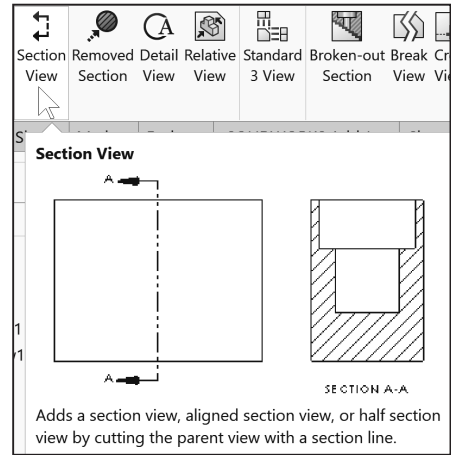
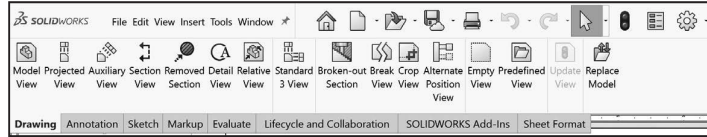
Create a Section view in a drawing by cutting the parent view with a section line. The Section view can be a straight cut section or an offset section defined by a stepped section line. The section line can also include concentric arcs.

Create an Aligned Section view in a drawing through a model, or portion of a model, that is aligned with a selected section line segment. The Aligned Section view is similar to a Section view, but the section line for an aligned section comprises two or more lines connected at an angle.

Create a Crop view, sketch a closed profile such as a circle or spline. The view outside the closed profile disappears as illustrated.

 Crop any drawing view except a Detail view, a view from which a Detail view has been created, or an Exploded view.

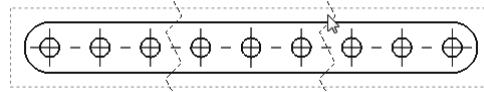
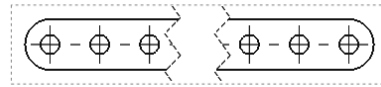
Create a Detail view in a drawing to display a portion of a view, usually at an enlarged scale. This detail may be of an orthographic view, a non-planar (isometric) view, a Section view, a Crop view, an Exploded assembly view, or another Detail view.





**Tutorial: Drawing Named Procedure 2-1**

Identify the drawing name view and understand the procedure to create the name view.

1. **View** the illustrated drawing views. The top drawing view is a Break view. The Break view is created by adding a break line to a selected view.



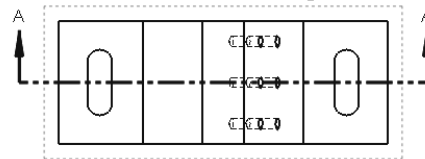
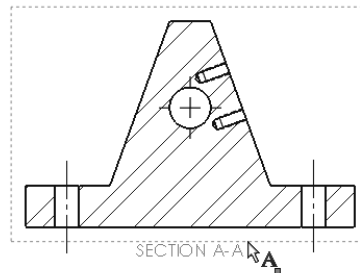
 Broken views make it possible to display the drawing view in a larger scale on a smaller size drawing sheet. Reference dimensions and model dimensions associated with the broken area reflect the actual model values.


 In views with multiple breaks, the Break line style must be the same.

**Tutorial: Drawing Named Procedure 2-2**

Identify the drawing name view and understand the procedure to create the name view.

1. **View** the illustrated drawing views. The top drawing view is a Section view of the bottom view. The Section view is created by cutting the parent view with a cutting section line.

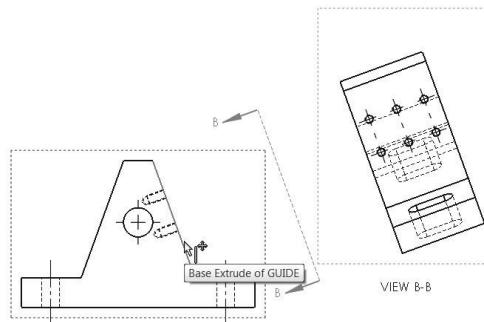



 Create a Section view in a drawing by cutting the parent view with a section line. The section view can be a straight cut section or an offset section defined by a stepped section line. The section line can also include Concentric arcs.

**Tutorial: Drawing Named Procedure 2-3**

Identify the drawing name view and understand the procedure to create the name view.

1. **View** the illustrated drawing views. The view to the right is an Auxiliary view of the Front view. Select a reference edge to create an auxiliary view as illustrated.

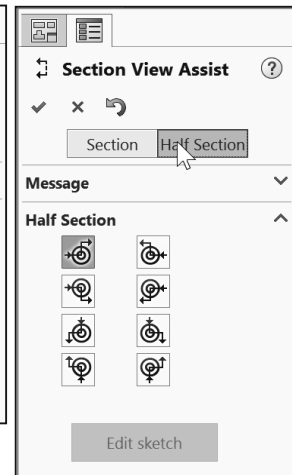
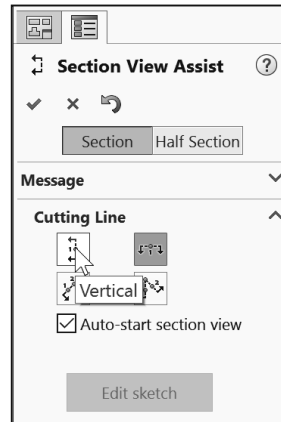
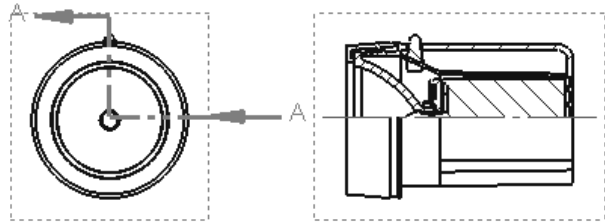



 An Auxiliary view is similar to a Projected view, but it is unfolded normal to a reference edge in an existing view.

**Tutorial: Drawing Named Procedure 2-4**

Identify the drawing name view and understand the procedure to create the name view.

1. **View** the illustrated drawing views. The right drawing view is an Aligned half Section view of the view to the left. The Section view is created by using two lines connected at an angle. Create an Aligned half Section view in a drawing through a model, or portion of a model, that is aligned with a selected section line segment.

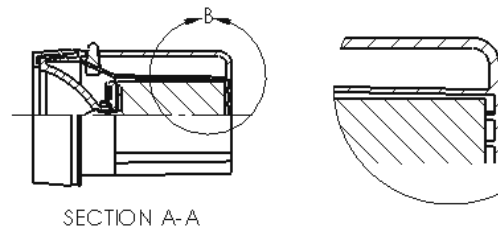



 The Aligned Section view is very similar to a Section View, with the exception that the section line for an aligned half section is comprised of two or more lines connected at an angle.


**Tutorial: Drawing Named Procedure 2-5**

Identify the drawing name view and understand the procedure to create the name view.

1. **View** the illustrated drawing views. The left drawing view is a Detail view of the Section view. The Detail view is created by sketching a circle with the Circle Sketch tool. Click and drag for the location.



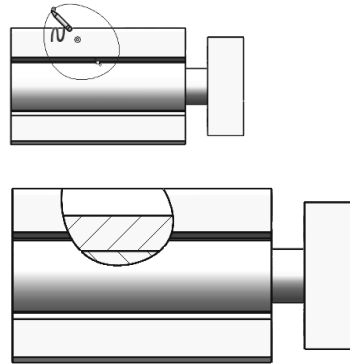
The Detail view  tool provides the ability to add a Detail view to display a portion of a view, usually at an enlarged scale.

 To create a profile other than a circle, sketch the profile before clicking the Detail view tool. Using a sketch entity tool, create a closed profile around the area to be detailed.

**Tutorial: Drawing Named Procedure 2-6**

Identify the drawing name view and understand the procedure to create the name view.

1. **View** the illustrated drawing views. The top drawing view is a Broken-out Section view of the bottom drawing view. The Broken-out Section View is part of an existing drawing view, not a separate view. Create the Broken-out Section view with a closed profile, usually by using the Spline Sketch tool. Material is removed to a specified depth to expose inner details.



**Tutorial: Drawing Named Procedure 2-7**

Identify the drawing name view and understand the procedure to create the name view.

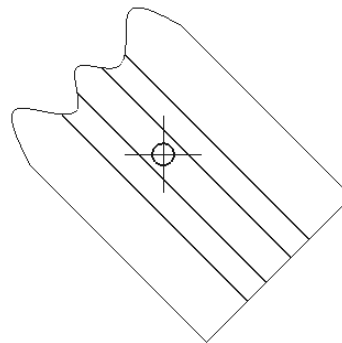
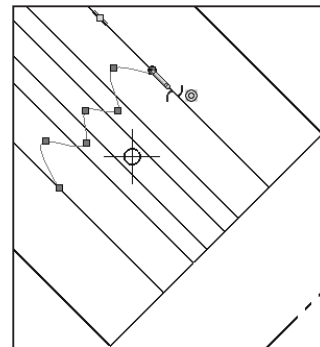
1. **View** the illustrated drawing view. The top drawing view is a Crop view. The Crop view is created by a closed sketch profile such as a circle, or spline as illustrated.

The Crop View provides the ability to crop an existing drawing view. You cannot use the Crop tool on a Detail view, a view from which a Detail view has been created, or an Exploded view.

Use the Crop tool to save steps. Example: instead of creating a Section View and then a Detail view, then hiding the unnecessary Section view, use the Crop tool to crop the Section view directly.




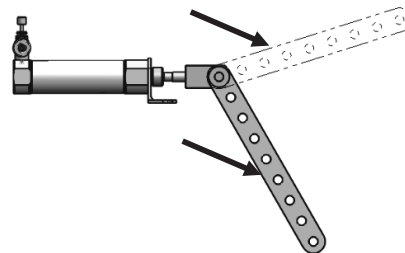
In the exam, you are allowed to answer the questions in any order. Use the Summary Screen during the exam to view the list of all questions you have or have not answered.



**Tutorial: Drawing Named Procedure 2-8**

Identify the drawing name view and understand the procedure to create the name view.

1. **View** the illustrated drawing view. The drawing view is an Alternate Position View. The Alternate Position view tool  provides the ability to superimpose an existing drawing view precisely on another. The alternate position is displayed with phantom lines.



## Intended Audience

The intended audience is anyone with a minimum of 6 - 9 months of SOLIDWORKS experience and basic knowledge of engineering fundamentals and practices.

SOLIDWORKS recommends that you review their SOLIDWORKS Tutorials on Parts, Assemblies and Drawings as a prerequisite and have at least 45 hours of classroom time learning SOLIDWORKS or using SOLIDWORKS with basic engineering design principles and practices.

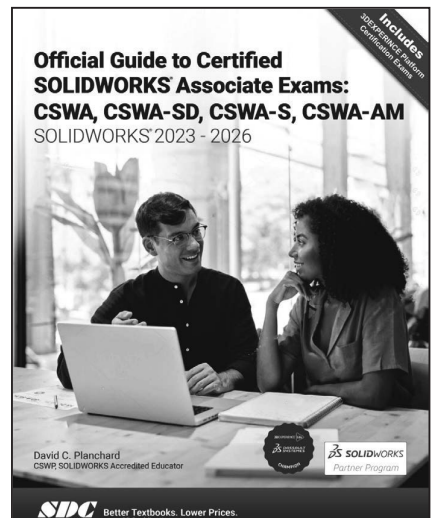
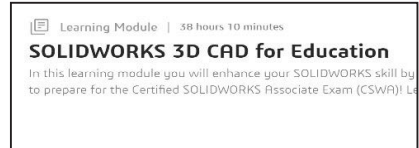
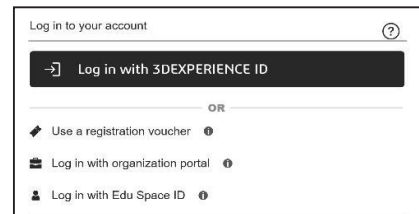
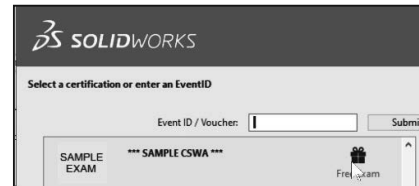
To prepare for the CSWA exam, it is recommended that you first perform one or more of the following:

- Take the free sample online CSWA exam. Visit <https://3dexperience.virtualtester.com/#home>.
- Visit 3DEXPERIENCE edu space <https://eduspace.3ds.com/>. (Log in/Register). **Note:** You need a 3DEXPERIENCE ID. Locate the SOLIDWORKS 3D CAD for Education learning module. Address the module.
- Visit MySolidWorks <https://my.solidworks.com/training>. Available to all users with an active subscription. Address the certification training section.

Additional reference material:

**Official Guide to Certified SOLIDWORKS® Associate Exams: CSWA, CSWA-SD, CSWA-S, CSWA-AM 2023 - 2026.** There are over 180 practice questions (questions and answers) and models (initial and final) in the Associate Exams book.

Supplementary information (over 170 questions and examples) is provided on the 3DEXPERIENCE Platform certifications; namely the SOLIDWORKS Associate - Collaborative Designer Role and the SOLIDWORKS Associate - 3D Creator (xDesign).



# Summary

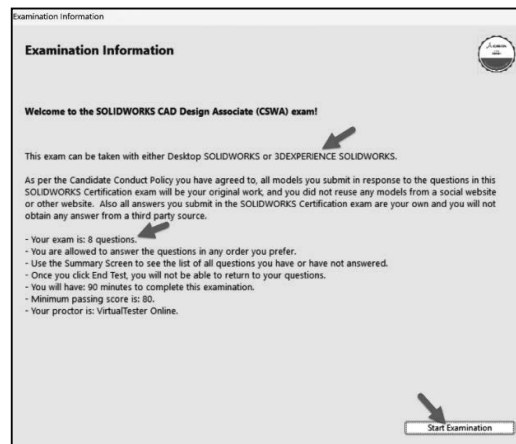
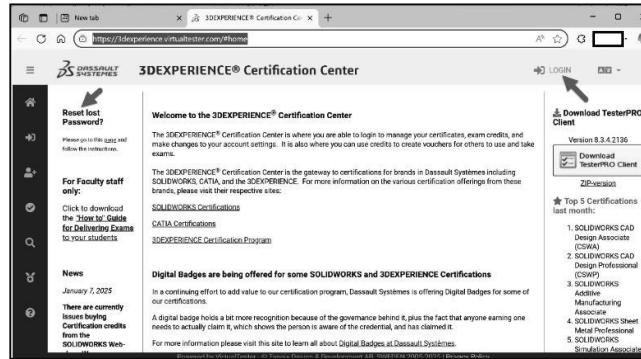
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You need to pass both segments to obtain your CSWA Certification. Once you pass a segment, you will not have to take it again. You can take the segments in any order.

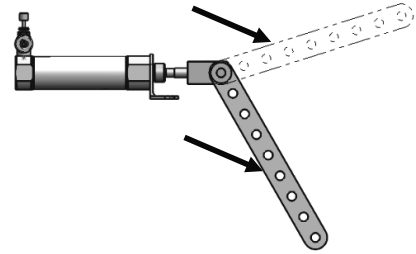
If you fail a segment, there is a 14-day waiting period before retaking the failed segment.



**Questions:**

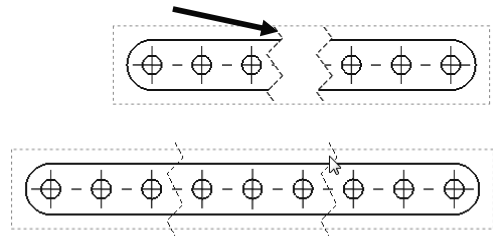
1. Identify the illustrated Drawing view.

- A: Projected
- B: Alternative Position
- C: Extended
- D: Aligned Section



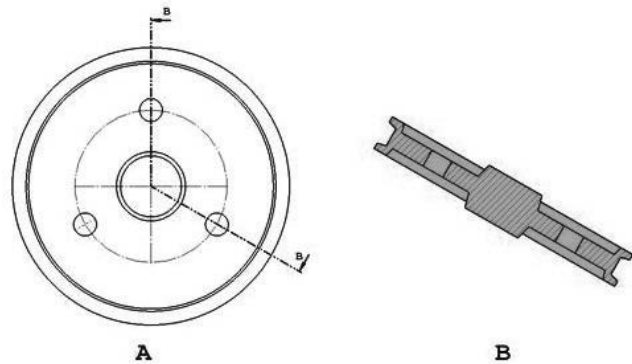
2. Identify the illustrated Drawing view.

- A: Crop
- B: Break
- C: Broken-out Section
- D: Aligned Section



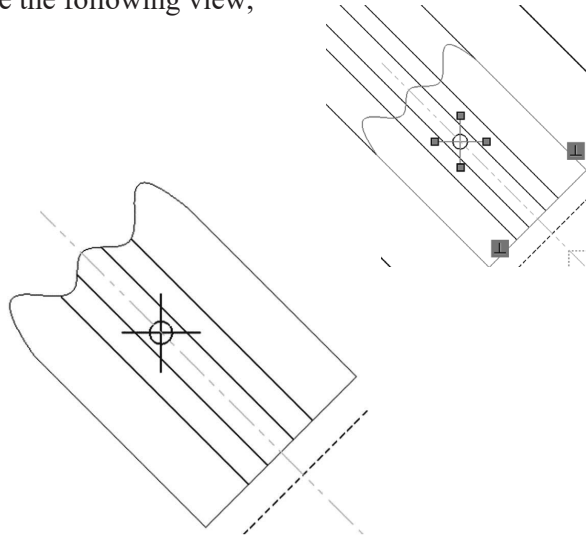
3. Identify the illustrated Drawing view.

- A: Section
- B: Crop
- C: Broken-out Section
- D: Aligned Section



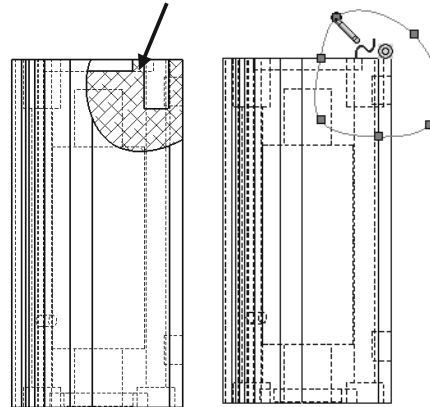
4. Identify the view procedure. To create the following view, you need to insert a:

- A: Rectangle Sketch tool
- B: Closed Profile: Spline
- C: Open Profile: Circle
- D: None of the above



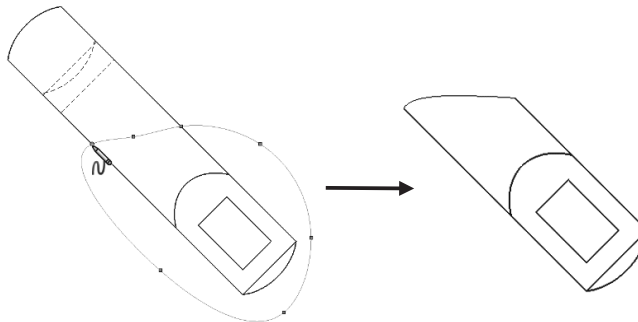
5. Identify the view procedure. To create the following view, you need to insert a:

- A: Open Spline
- B: Closed Spline
- C: 3 Point Arc
- D: None of the above



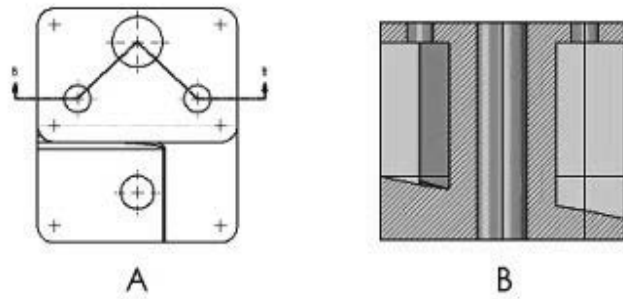
6. Identify the illustrated view type.

- A: Crop
- B: Section
- C: Projected
- D: Detail



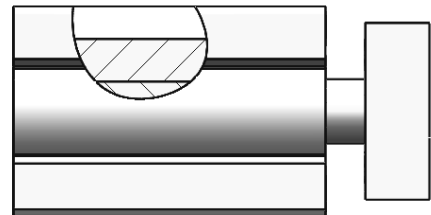
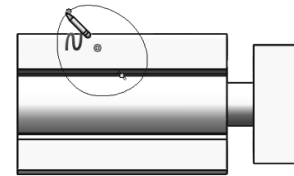
7. To create View B from Drawing View A insert which View type?

- A: Crop
- B: Section
- C: Aligned Section
- D: Projected



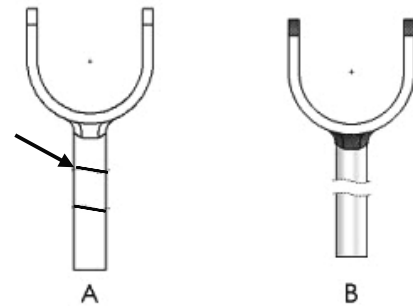
8. To create View B it is necessary to sketch a closed spline on View A and insert which View type?

- A: Broken out Section
- B: Detail
- C: Section
- D: Projected

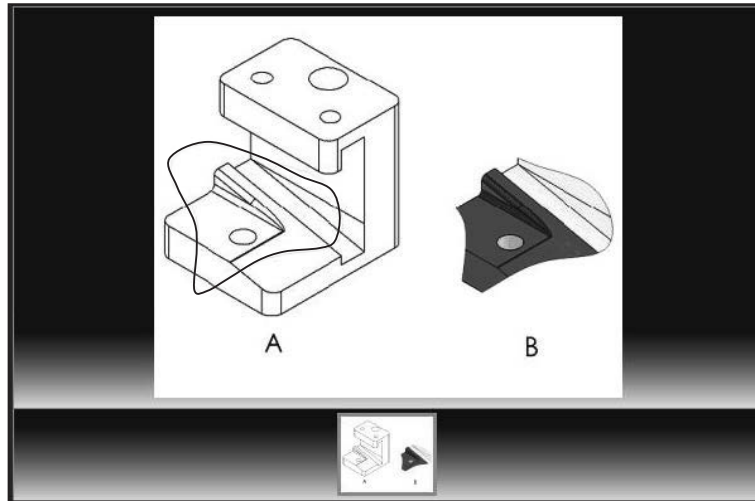


9. To create View B it is necessary to sketch a closed spline on View A and insert which View type?

- A: Horizontal Break
- B: Detail
- C: Section
- D: Broken out Section

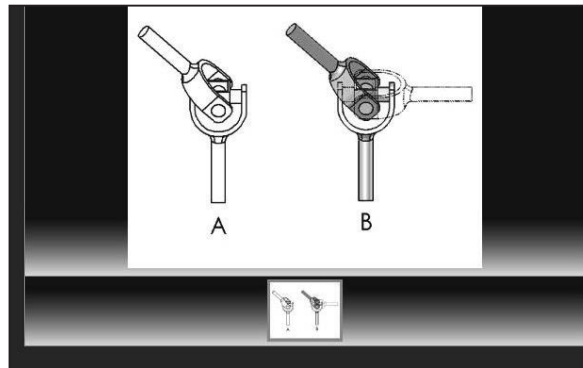


💡 Screen shots from an older CSWA exam for the Drafting Competencies category. Read each question carefully. Use SOLIDWORKS help if needed.



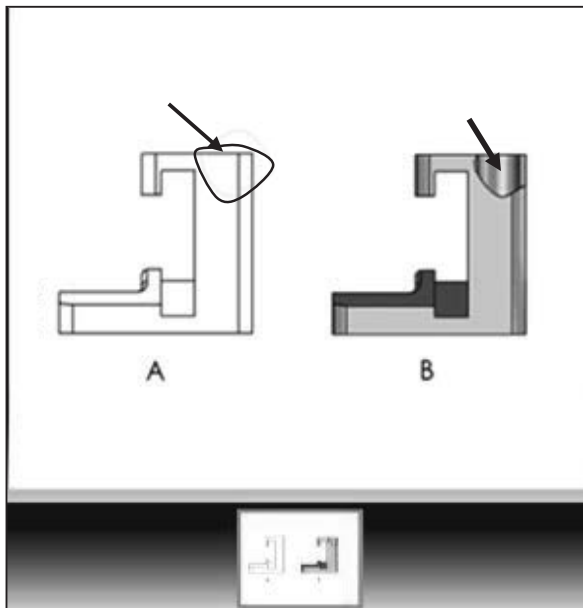
💡 Zoom in on the part or view if needed.

**Alternative Position View:**

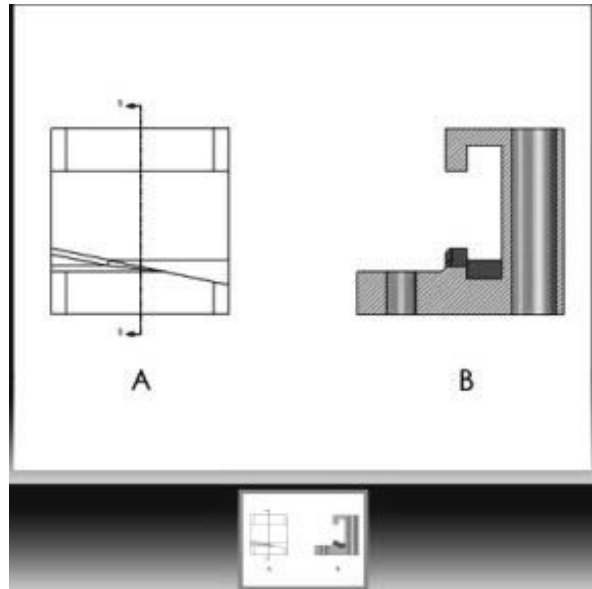


💡 Screen shots from an older CSWA exam for the *Drafting Competencies* category. Read each question carefully. Use SOLIDWORKS help if needed.

**Broken out Section View:**



Section View:



## **CSWA Introduction and Drafting Competencies**

**Notes:**