

SOLIDWORKS Certification Exam Guide & Practice Test



**CSWPA-WD: Certified
SOLIDWORKS Professional
Advanced Weldments**

Contents

About This Guide	3
The CSWPA-WD Certification.....	4
CSWPA-WD Exam Details.....	5
How to Prepare for the Exam.....	6
How to Take This Practice Exam.....	7
Taking the Real Exam	8
Test Questions.....	15
Answer Key	26
Hints and Tips	27
Frequently Asked Questions	33
Helpful Sites.....	36

About This Guide

This guide contains information, advice, and practice for obtaining your advanced professional certification in SOLIDWORKS Weldments. Here, you will find:

- An overview of SOLIDWORKS Certifications
- Details about the CSWPA-WD Exam
- Advice on preparing for and taking the CSWPA- WD Exam
- A practice exam for the Primary Part portion of the CSWPA-WD
- An answer key to the practice exam
- Directions to useful SOLIDWORKS websites

The CSWPA-WD Certification

SOLIDWORKS Certifications are a benchmark to measure your knowledge and competency with SOLIDWORKS software. A certification helps you stand out from the crowd and showcases your expertise to businesses and professionals alike—a valuable asset in a competitive job market.

A few popular SOLIDWORKS Certifications include:

- CSWA: Certified SOLIDWORKS Associate
- CSWP: Certified SOLIDWORKS Professional
- CSWPA: Certified SOLIDWORKS Professional Advanced:
 - Sheet Metal
 - Weldments
 - Surfacing
 - Mold Tools
 - Drawing Tools
- CSWE: Certified SOLIDWORKS Expert
- CEPA: Certified Enterprise PDM Administrator

Why take the CSWPA-WD Exam?

The Weldments certification sets you apart as a person who has successfully demonstrated their understanding of the SOLIDWORKS tools that aid in the design of Weldment components. For hiring managers, it acts as a valuable assessment to attest for an individual's competency, thereby reducing the amount of time and energy required to research prospective candidates.

Passing four of the five CSWPA exams, along with the CSWP, is a prerequisite for taking the CSWE Exam to become a Certified SOLIDWORKS Expert.

All candidates receive electronic certificates, business card logos, and personal listing in the CSWP directory when they pass.

CSWPA-WD Exam Details

CSWPA-WD exam contains questions from the following topics:

- Weldment profile creation
- Placing the Weldment profile in the Weldment profile library
- Basic and Advanced Weldment Part creation
- Weldment corner modification
- Placing gaps at corners and segment intersections
- End Caps
- Gussets
- Weldment Part modification
- Trim/Extend Command
- 3D Sketch Creation
- Cut List Folder management in the Weldment Part
- Cut List creation in the Weldment Drawing

Total Questions: 26

Total Points: 255

Points Needed to Pass: 190

Maximum Time: 120 min

How to Prepare for the Exam

Don't let the exam questions take you by surprise! We recommend that you practice the skills in the "CSWPA-WD Exam Details" section above, and that you ask for help from experienced SOLIDWORKS users.

No details to the solutions for either this sample exam or the real test will be shared by the SOLIDWORKS Certification team. Please consult your SOLIDWORKS reseller, your local user group, or the on-line SOLIDWORKS forums at forum.solidworks.com to review any topics on the CSWPA-WD exam.

A great resource is the SOLIDWORKS website (solidworks.com).

- For training courses, go to **Home > Support > Training > SOLIDWORKS Courses**.
- To download models to practice on, go to **Home > Support > Training > SOLIDWORKS Training Files**
- You'll find a wealth of access to videos, tutorials, blogs, events, and fellow users in the SOLIDWORKS Community at **Home > Resource Center**

You can also log into my.solidworks.com to browse lessons, forums, models, and much more.

Last but not least, make use of this exam guide to review realistic exam questions, look over important topics, and familiarize yourself with the exam procedure.

How to Take This Practice Exam

1. You must be running SOLIDWORKS on the computer, both for the practice and actual test. SOLIDWORKS can only be installed with the Windows operating system.
2. To simulate real conditions, it is best NOT to print this exam.
In the real test, the VirtualTester client window runs concurrently with SOLIDWORKS, requiring you to switch between applications. Keep this document open and consult it while running SOLIDWORKS.
3. After each question, save a version of your model in a different file for later reference. This may also help you fix errors later on in the test.
4. The multiple choice will help you check that your model is on the right track. If your answer is not listed in the selections offered, it is likely that there is something wrong with your model.
5. This guide includes an answer key after the practice exam.
6. If you can complete this exam and get at least 4 out of 5 questions correct in less than 25 minutes, you should be ready to take the real CSWPA-WD exam.

Taking the Real Exam

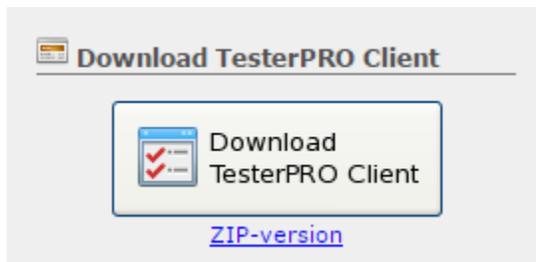
The real exam can be taken on your personal computer at a time of your choosing. The CSWPA-WD Exam is administered through the Tangix TesterPRO Client, an application that you may download from the SOLIDWORKS VirtualTester website.

To learn the testing procedure in VirtualTester, if you have a MySOLIDWORKS account, please refer to this video:

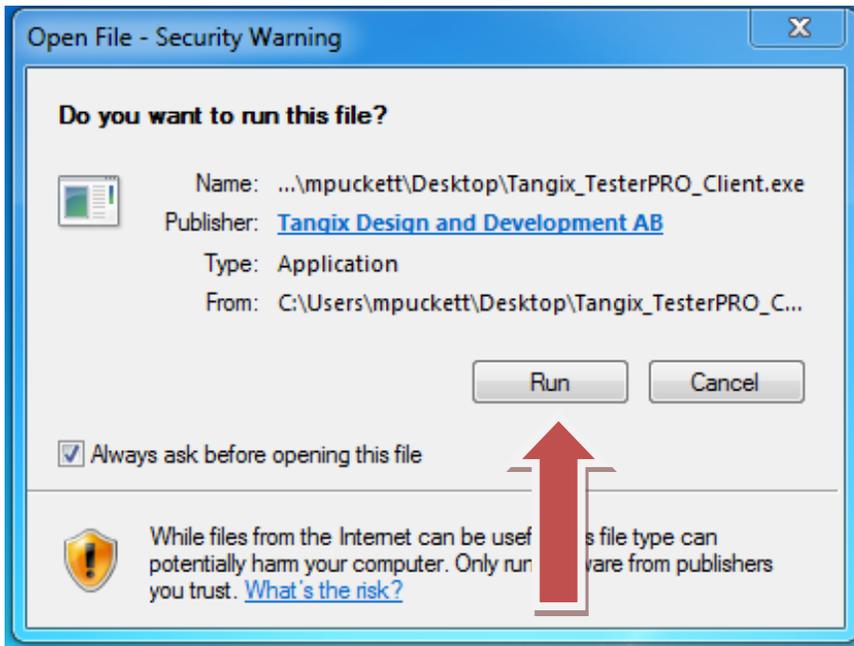
<http://my.solidworks.com/mylearning/lessons/489/installing-and-viewing-the-test-software>

Alternatively, you may follow these steps:

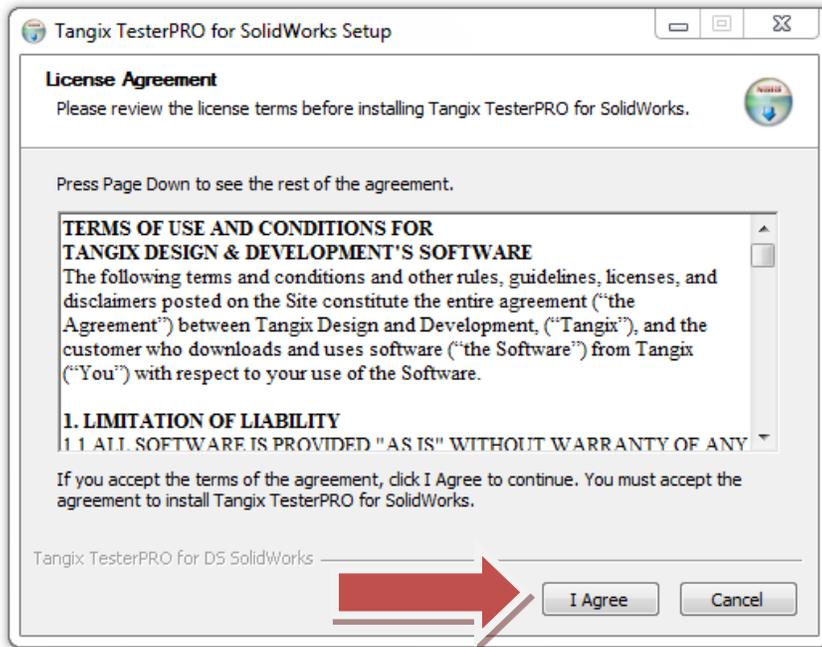
1. Visit the SOLIDWORKS VirtualTester Certification Center at <https://SOLIDWORKS.virtualtester.com/>.
2. Locate and click the button (right hand side of page) to download the Tangix TesterPRO Client:



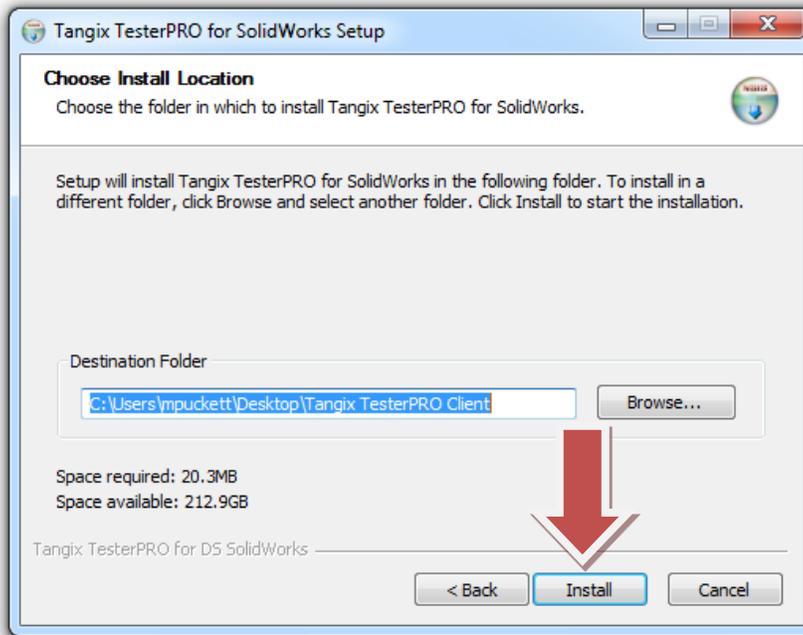
3. Open the downloaded folder and run the executable file:



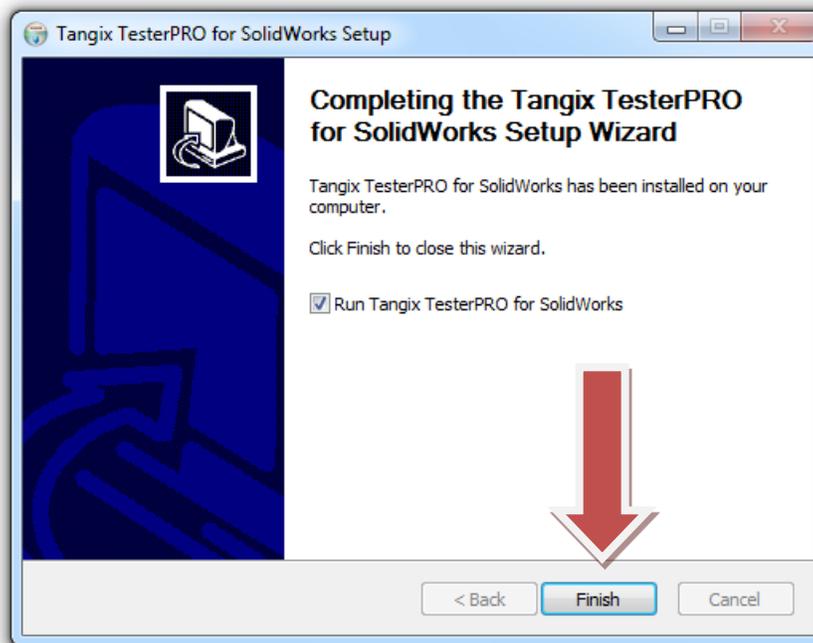
4. Agree to the License Agreement.



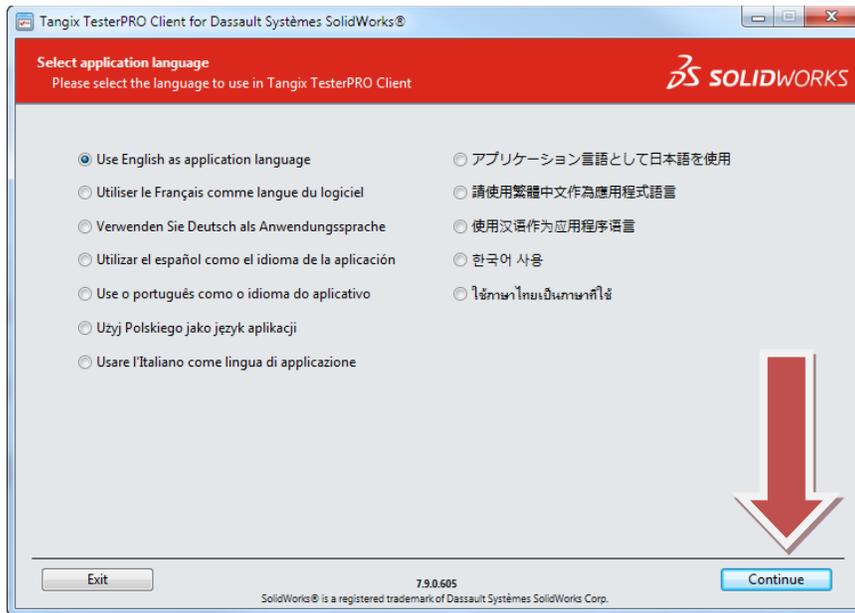
5. Click the install button.



6. Click the finish button.

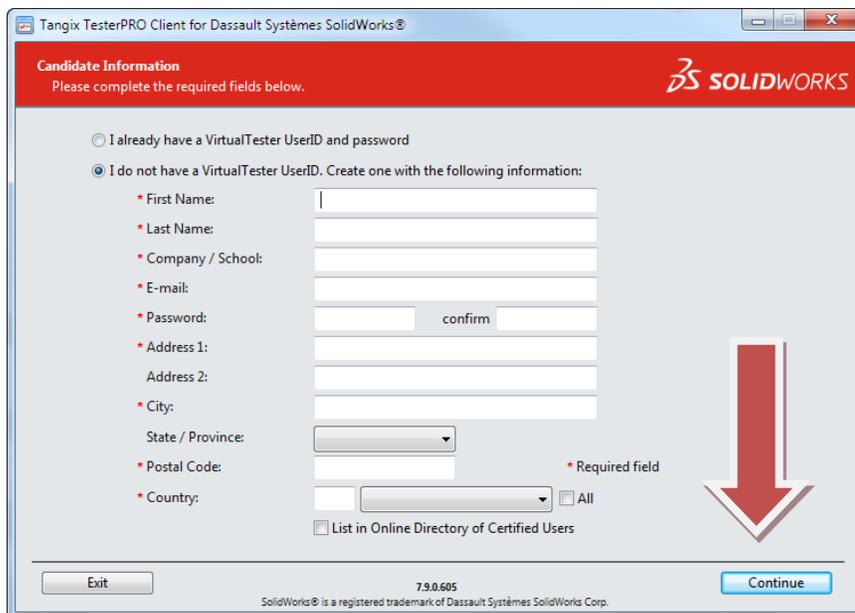


7. When you run the program, select your language and click Continue.



If you have already taken a SOLIDWORKS Certification Exam, skip to step 9.

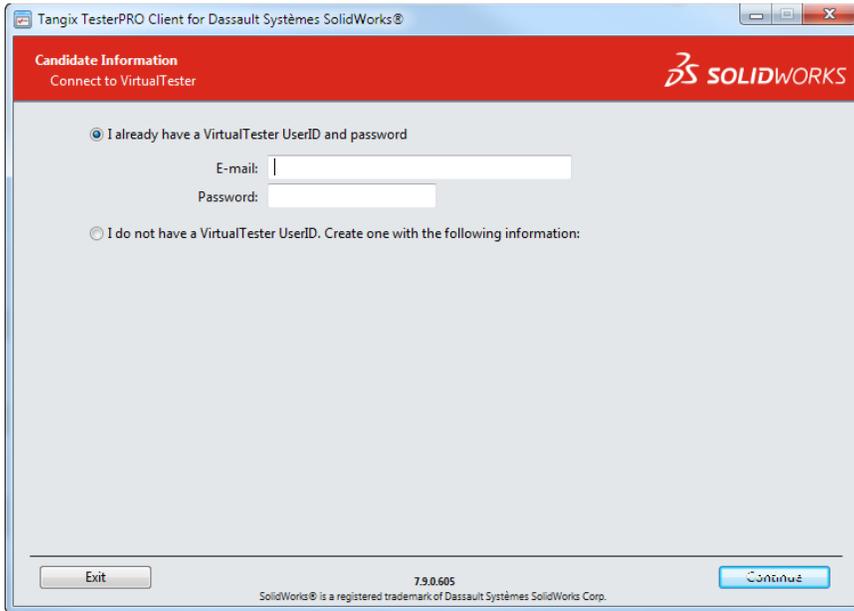
8. If this is your first exam, you will need to create an account. Fill in the required fields and click continue:



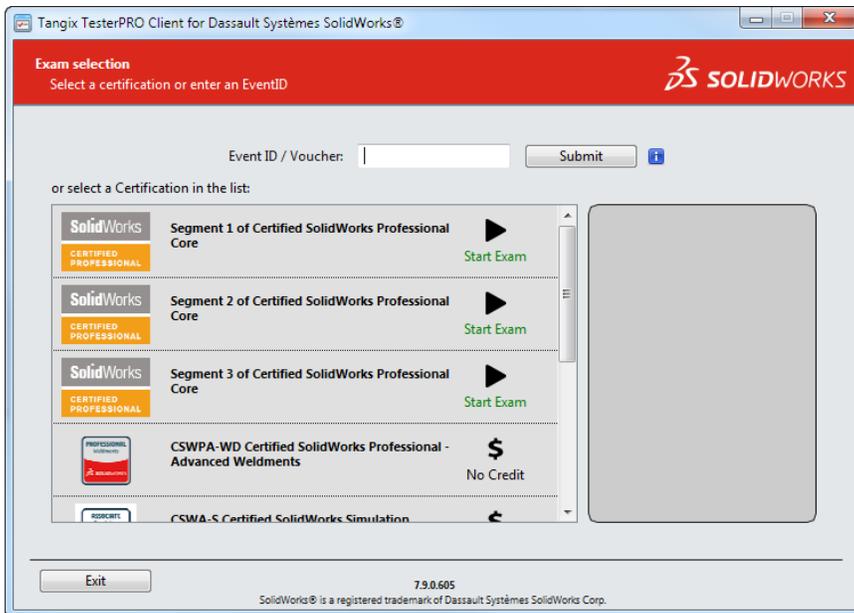
Write down your login credentials for future use!

Skip to step 10.

9. If you have already taken a SOLIDWORKS Certification Exam, select the option below, fill in your credentials, and click continue.



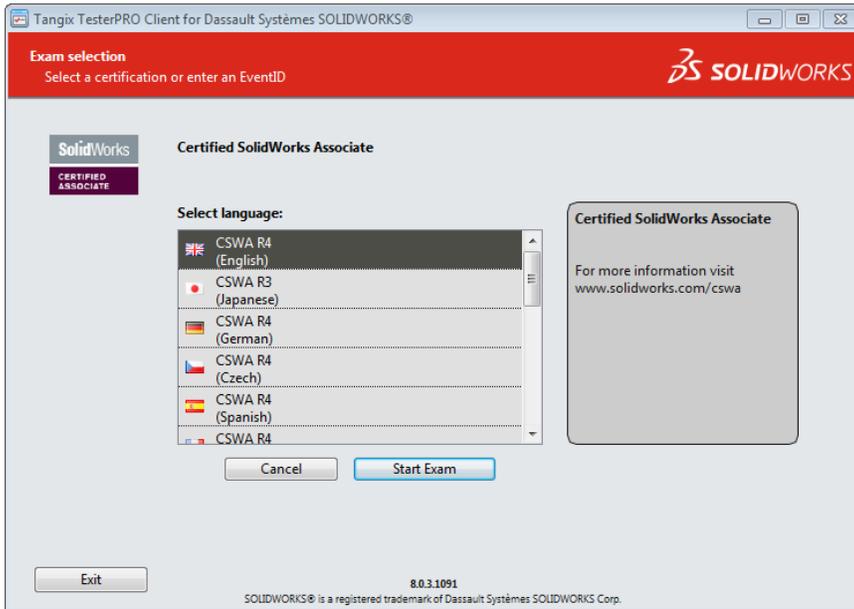
10. On the exam selection page select an exam that has the words 'Start Exam' next to it (only exams that you have credits for will show as available):



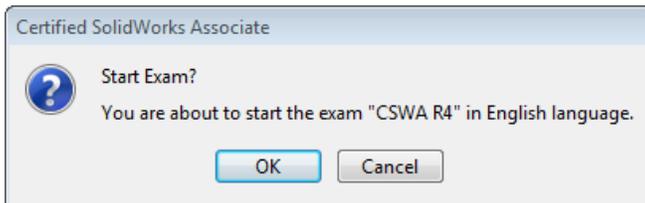
If you do not have credit for the exam, do one of the following:

- If you have an Event ID or Voucher, type it into the field on this page and click "Submit."
- Purchase an exam credit online. This may be found on solidworks.com:
Click **Support > Certification > Exam Registration**.

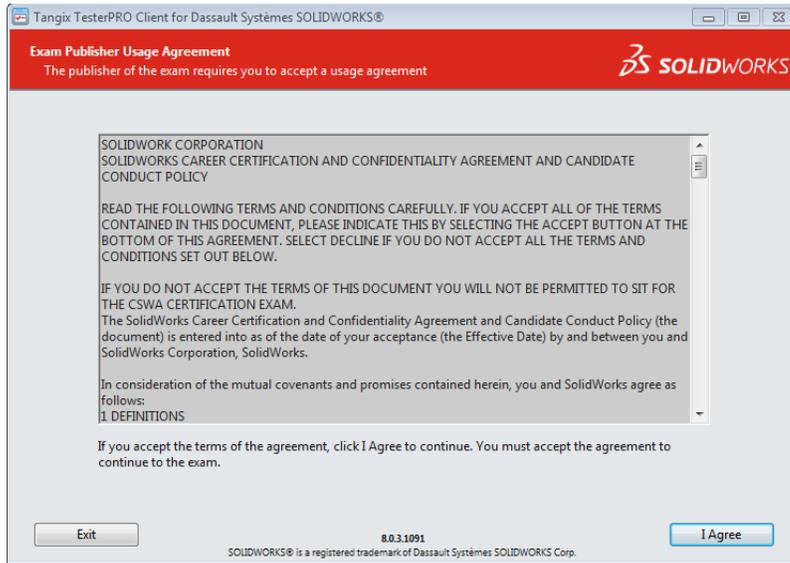
11. You may be asked to select a language. Select a language and click "Start Exam."



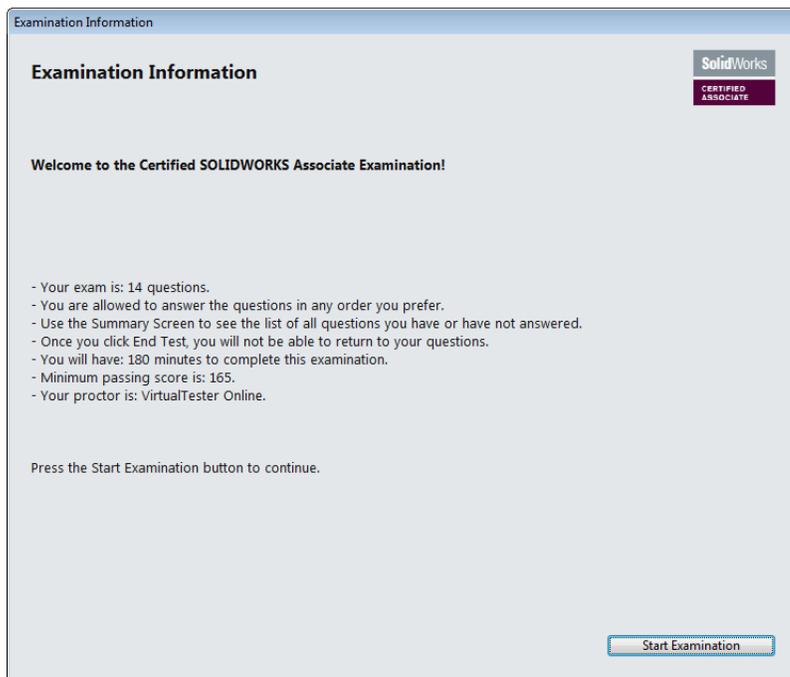
12. Confirm the exam you are about to begin:



13. Agree to the Confidentiality Agreement and Candidate Conduct Policy.



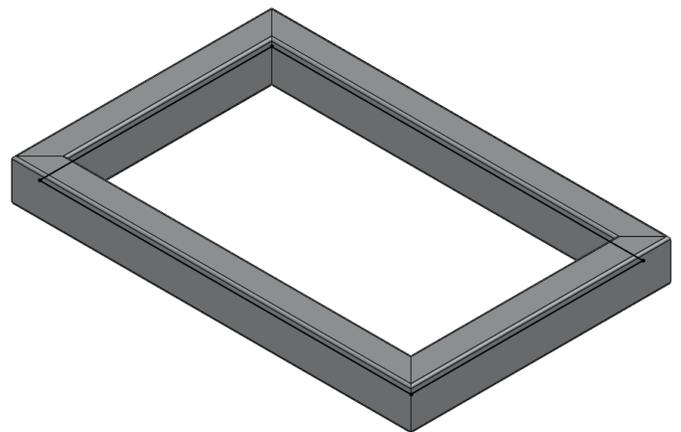
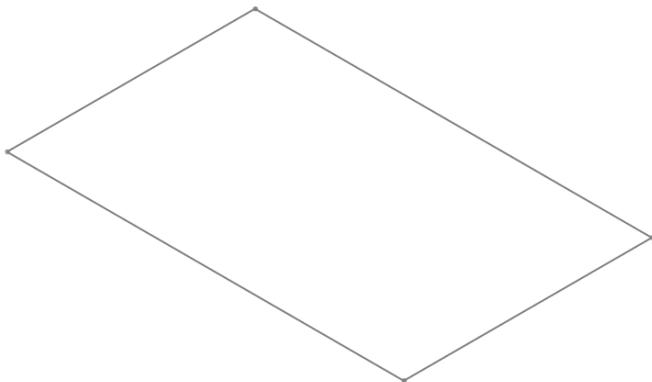
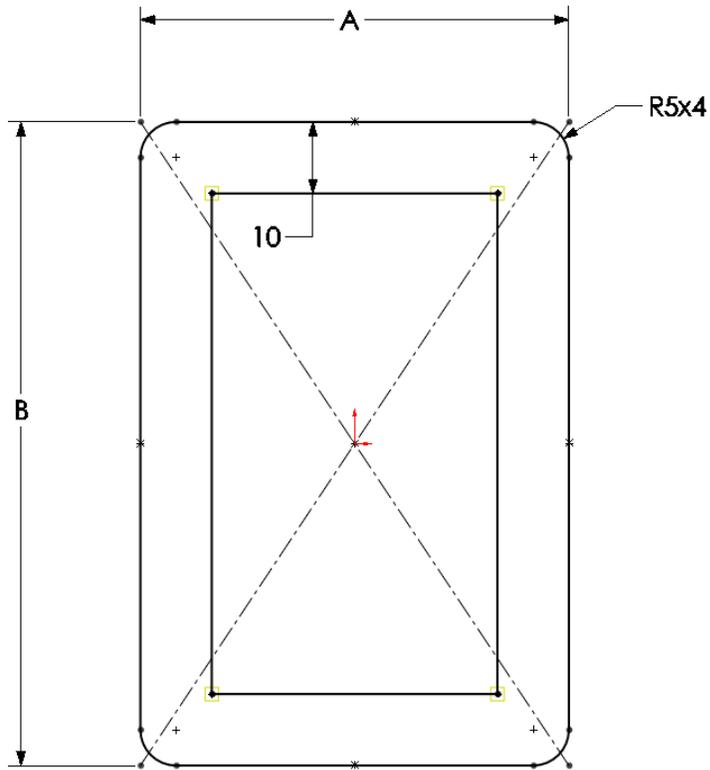
14. On the Examination Information page, read the information and then click "Start Examination", this will begin the timed portion of your exam.



The practice exam begins on the next page.

Test Questions

Use these images to answer Question 1.



1. Weldment Profile

Build this profile and part in SOLIDWORKS.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

Part origin: See Below

Material: 1060 Aluminum Alloy

Density = 0.0027 g/mm^3

Use the following parameters and equations which correspond to the dimensions labeled in the images:

$A = 60 \text{ mm}$

$B = 90 \text{ mm}$

Create a Weldment Profile as shown in the first image.

Note 1: The center of the Weldment Profile will be located at the origin.

Note 2: Ensure that the profile has pierce points at the midpoint of each external horizontal and vertical line.

Name the Weldment Profile "WLDM-EX1" and save it in the Weldment Profile library so that it can be used to create Weldment parts.

Open the file "A.sldprt". This file contains a rectangular 3D sketch.

Using Weldment Profile "WLDM-EX1", create a Weldment part as shown.

Note 1: Align the center of the Weldment profile to the 3D sketch.

Note 2: Use the "End Miter" option to join all segments to each other.

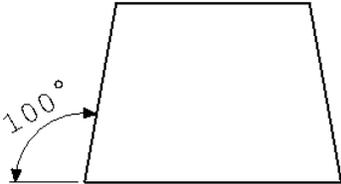
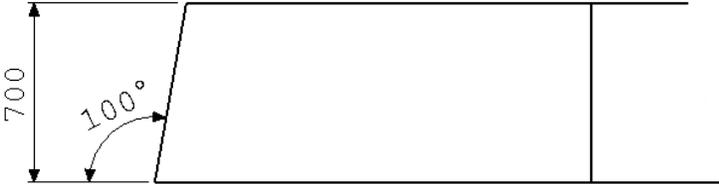
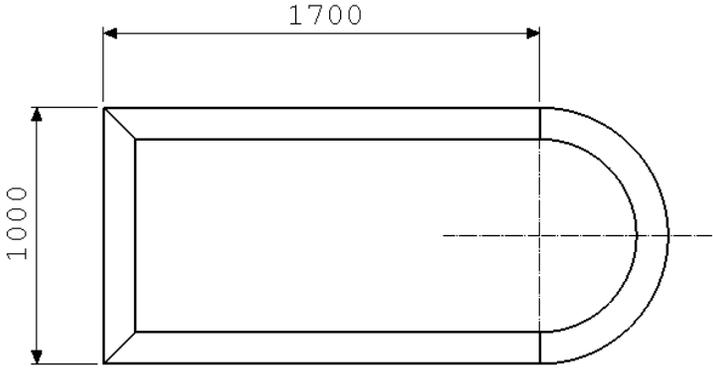
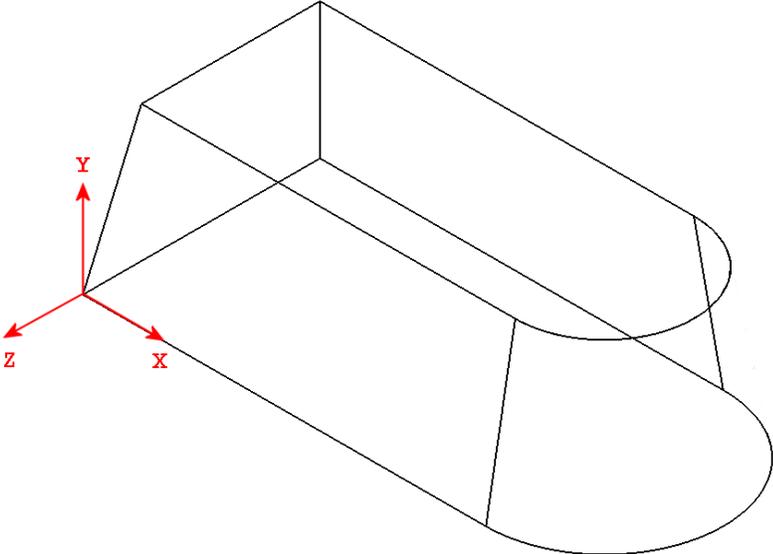
Measure the total mass of all four segments created.

Note: Make sure to apply the proper material to the part.

What is the total mass of all four Weldment segments (grams)?

- a) 6704
- b) 13211
- c) 18101
- d) 19535

Use these images to answer Question 2.



2. 3D Sketch Creation

Build this 3D Sketch in SOLIDWORKS.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 0

Part origin: As shown

Build this 3D Sketch in SOLIDWORKS using the following parameters:

Note 1: All the lowest elements can be assumed to lie on the XZ plane.

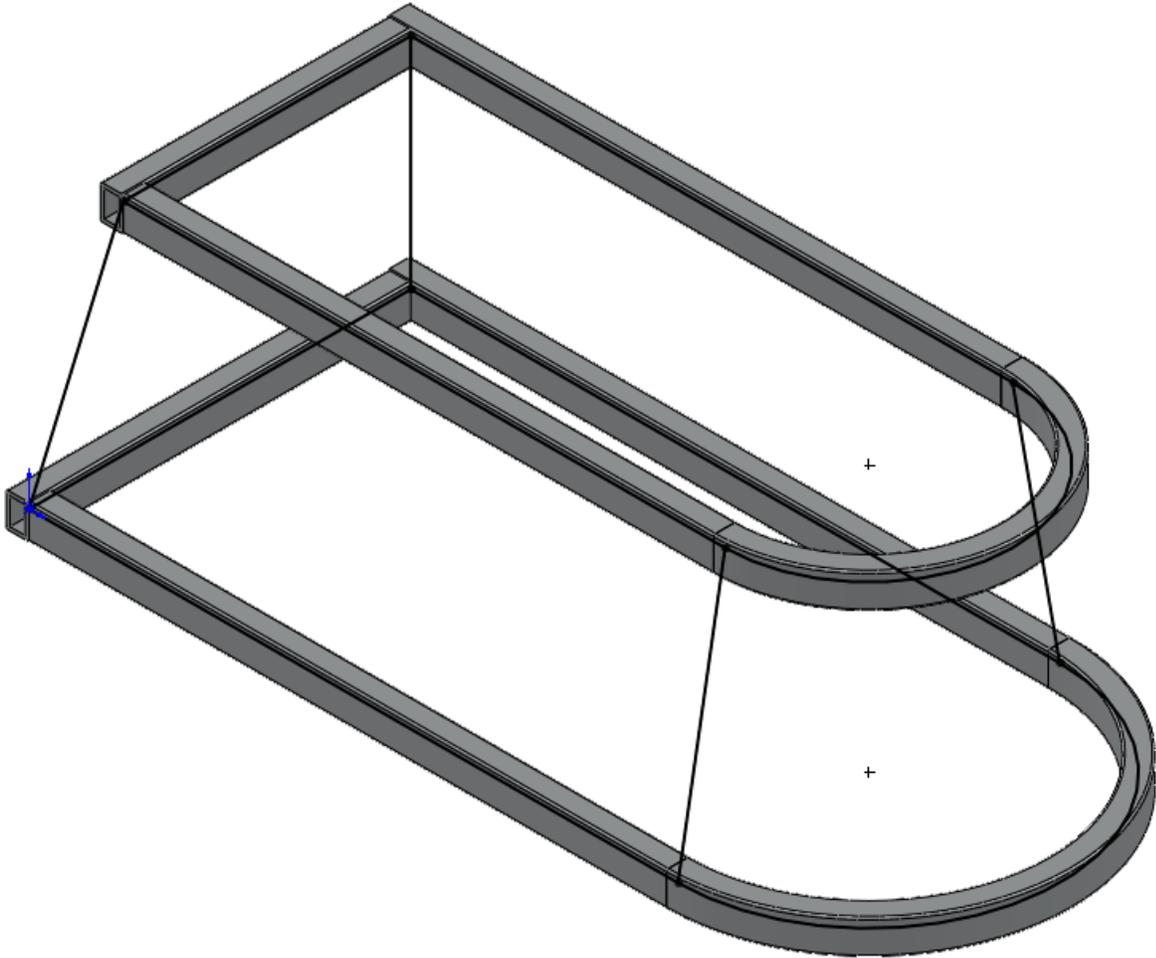
Note 2: Please refer to both dimensioned isometric images before proceeding to ensure you understand all parameters, dimensions, and relations required.

Note 3: Create the sketch in relation to the part origin as shown. This will be important for Center of Mass measurements in later questions.

After the 3D sketch is created, select all the sketch elements and then click on Tools > Measure to display the total length of the 3D sketch elements.

What is the total length of all the 3D Sketch elements in the 3D Sketch (mm)?

Use this image to answer Question 3.



3. Initial Part Creation

Build this Weldment solid in SOLIDWORKS.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

Material: 1060 Alloy Aluminum

Density = 0.0027 g/mm³

Apply the material 1060 Alloy Aluminum to this part.

Using Weldment Profile "WLDM-EX1", create a Weldment part as shown.

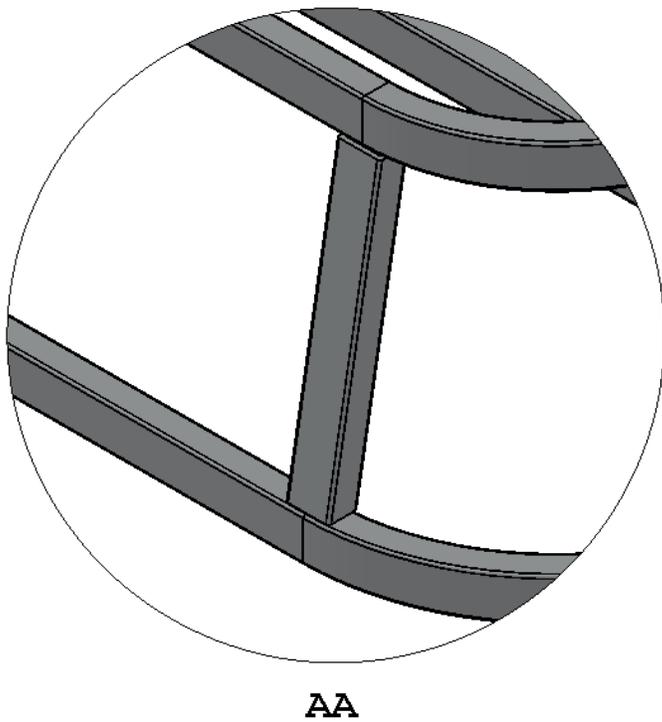
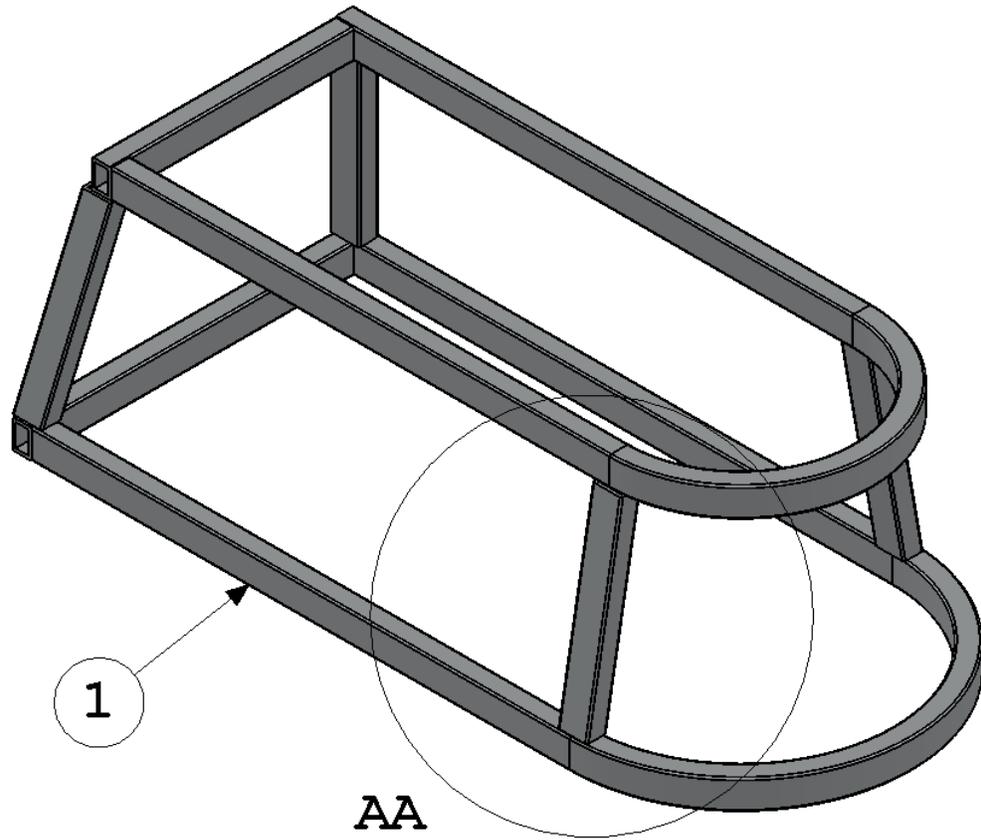
Note 1: Align the center of the Weldment profile to the 3D sketch elements.

Note 2: Use the "End Butt1" corner treatment option to join all segments to each other.

Measure the total mass of all the segments created.

What is the total mass of all the Weldment segments (grams)?

Use these images to answer Question 4.



4. Vertical Legs Creation

Build this Weldment solid in SOLIDWORKS.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

Material: 1060 Alloy Aluminum

Density = 0.0027 g/mm³

Add the four vertical legs to the Weldment part using profile "WLDM-EX1".

Note 1: Use the center of the Weldment profile to locate it on the 3D sketch.

Note 2: There will be a 0 mm gap between all segments at their intersections and corners.

Note 3: The vertical axis of the Weldment profile will be aligned with the #1 segment labeled in the image above.

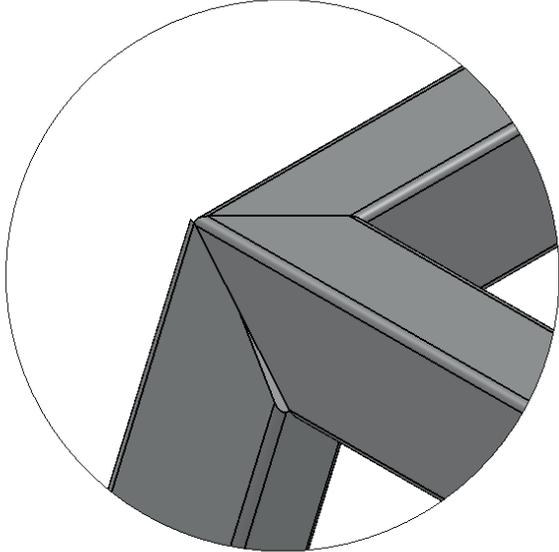
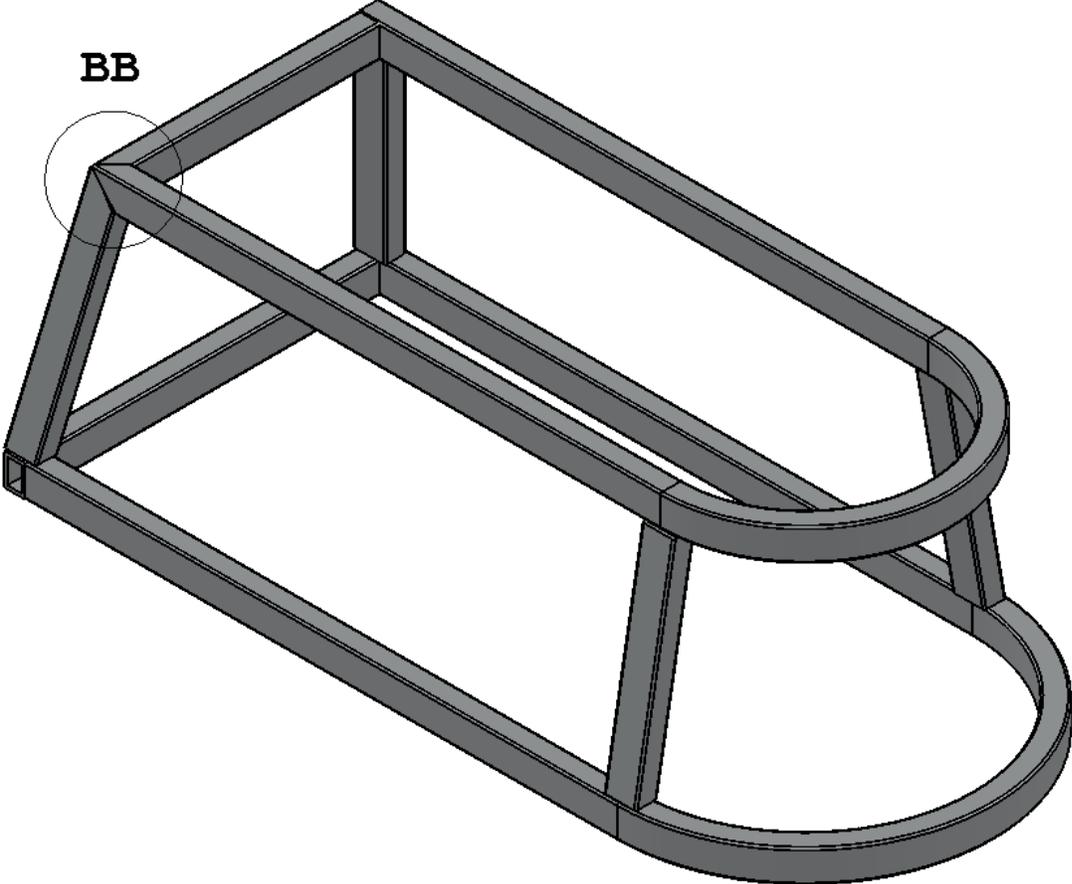
Note 4: The vertical legs will be trimmed cleanly to the lower and upper Weldment segments that they contact.

Measure the total mass of ALL the segments in the Weldment part.

What is the total mass of all the Weldment segments (grams)?

- a) 34955
- b) 94379
- c) 102224
- d) 36766

Use these images to answer Question 5.



BB

5. 3 Segment Corner Miter

Modify the corner indicated by Detail BB so that all three segments meet together in a mitered corner.

Select the one vertical leg at this corner indicated in the image above and measure its mass. **SELECT ONLY THIS SEGMENT.**

What is the mass of the selected vertical leg (grams)?

END OF TEST

Answer Key

1. c) 18101
2. 13924.58
3. 77001.15
4. b) 94379
5. 4602.09

Hints and Tips

HINT 1: 3D Sketches

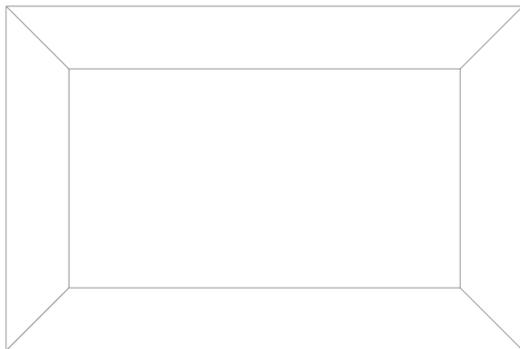
Below is an example of a common 3D sketch mistake:

We are asked to build a wire-frame 3D sketch like the one below.

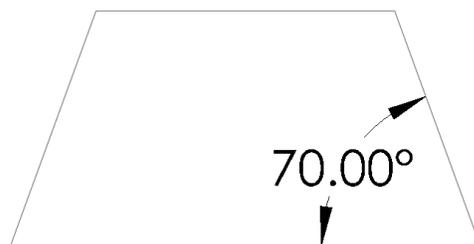


Angles are provided in the context of the Right and Front Planes.

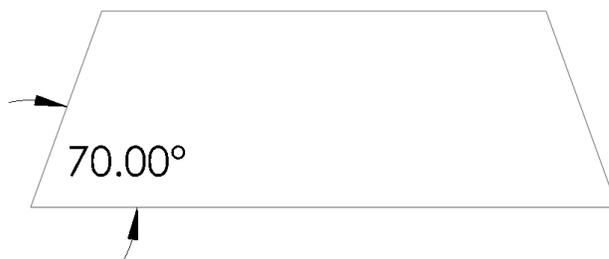
Top View



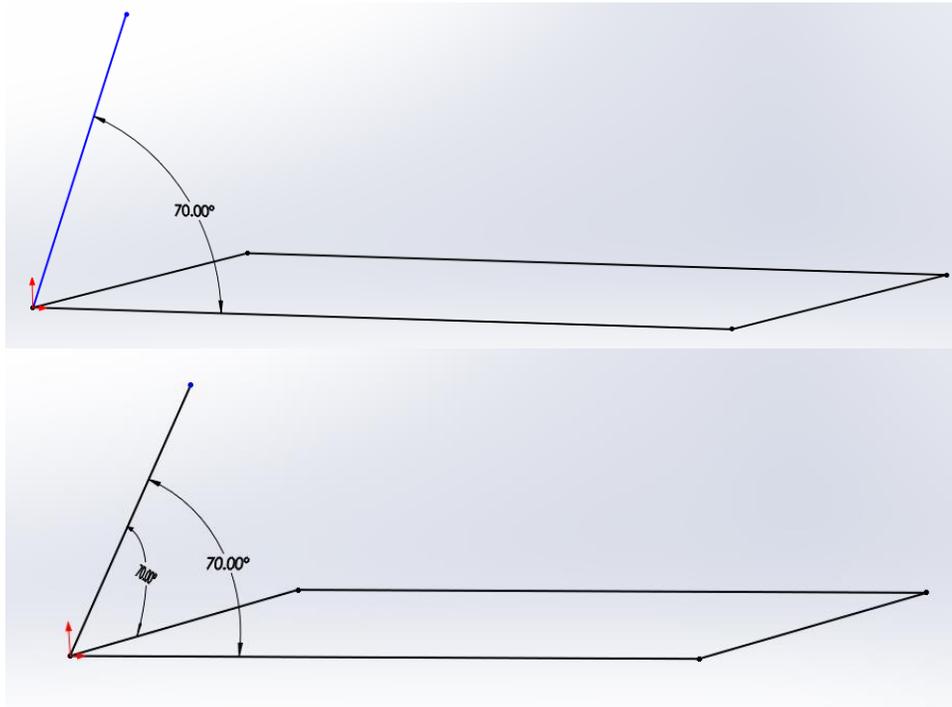
Front View



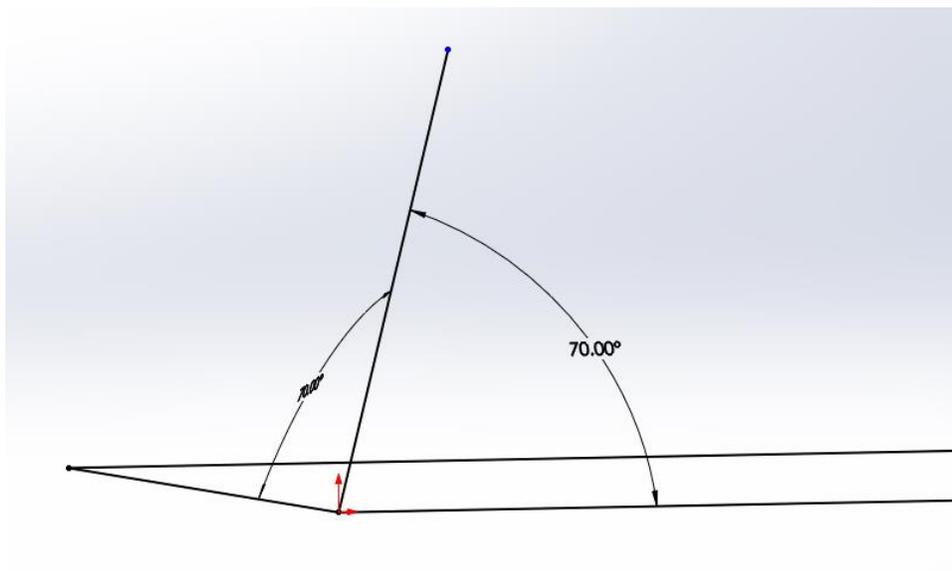
Right View



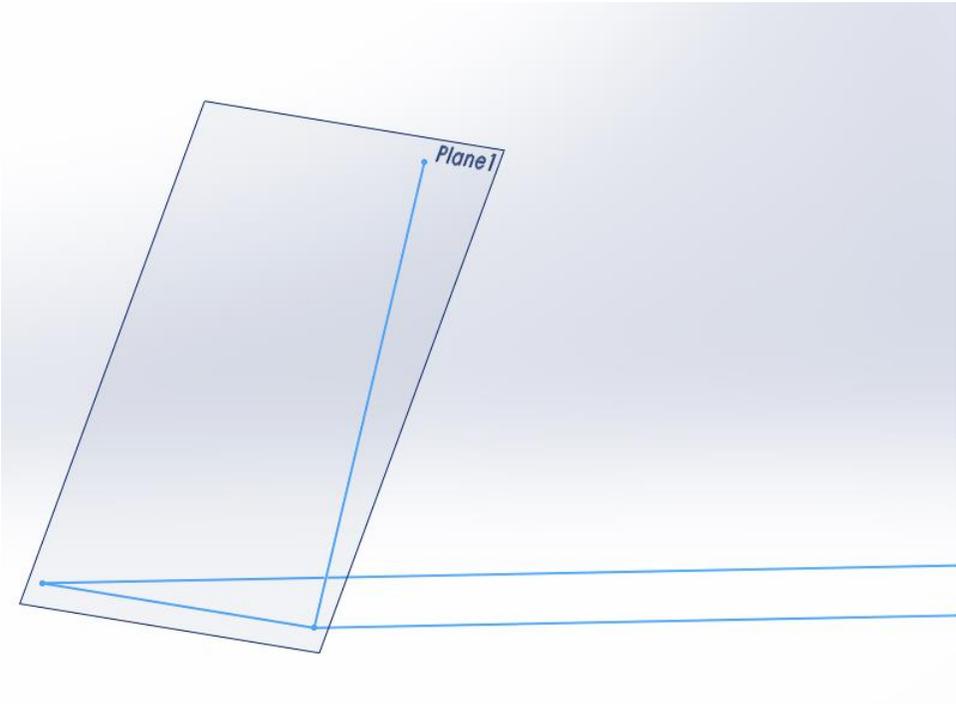
Within the 3D Sketch tool, we attempt to dimension the sketch by creating angles between the line and the two lines at its base.



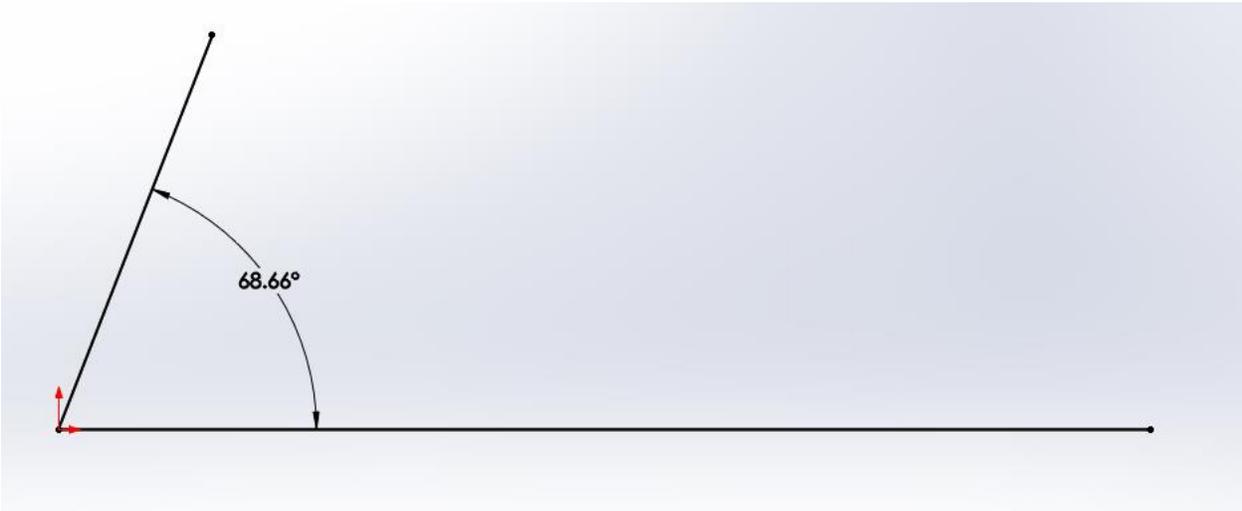
However, this results in dimensions that are no longer flat against the Front and Right Planes.



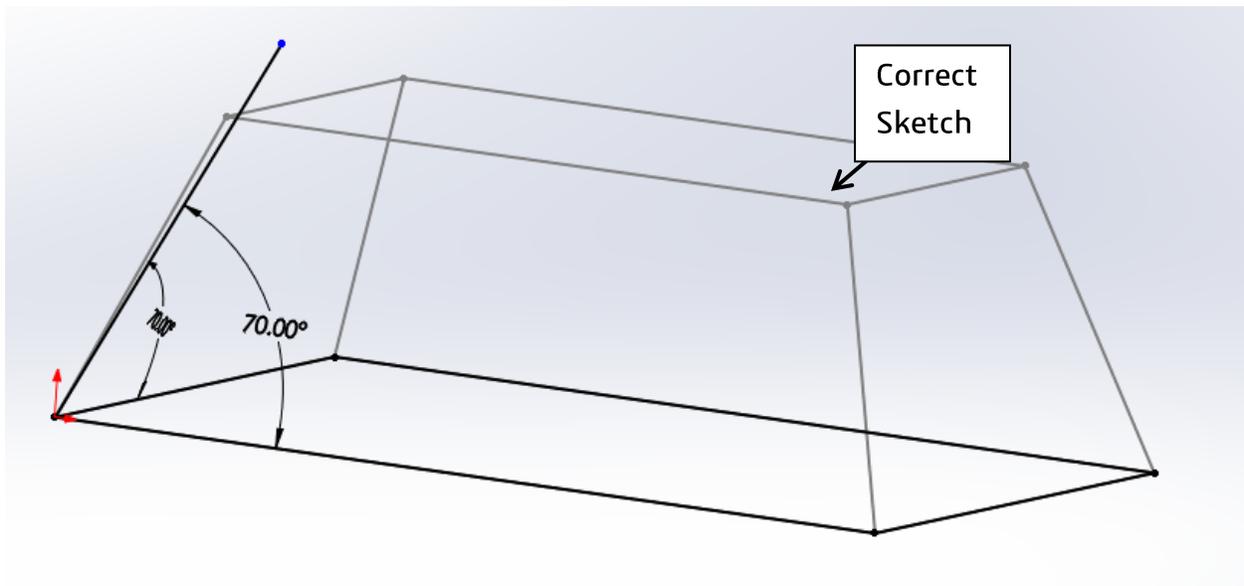
For example, the dimension that should be in respect to the Front Plane now lies at an angle, illustrated below by Plane 1.



When we convert the entities to a sketch on the Right Plane, we see that our dimensions make the sketch untrue to the original diagrams.



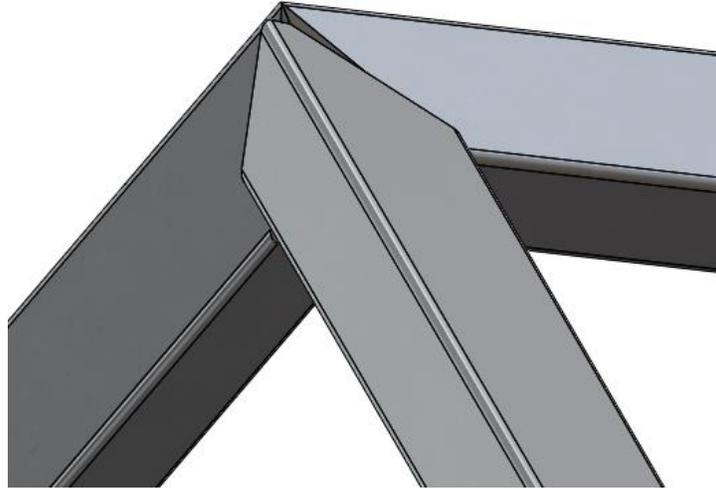
The difference in angle becomes clear when we display the erroneous sketch on top of the correct sketch.



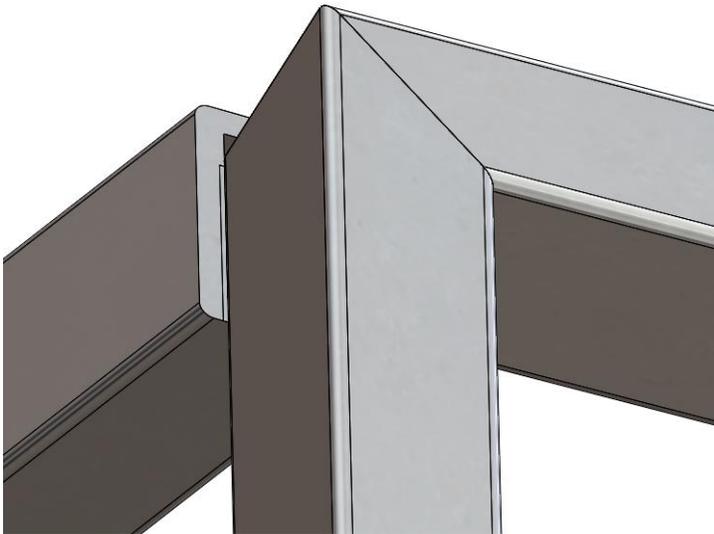
To avoid this error, it is often wise to create the 3D sketch from solid features or reference planes that you can easily edit and dimension.

HINT 2: End Miters

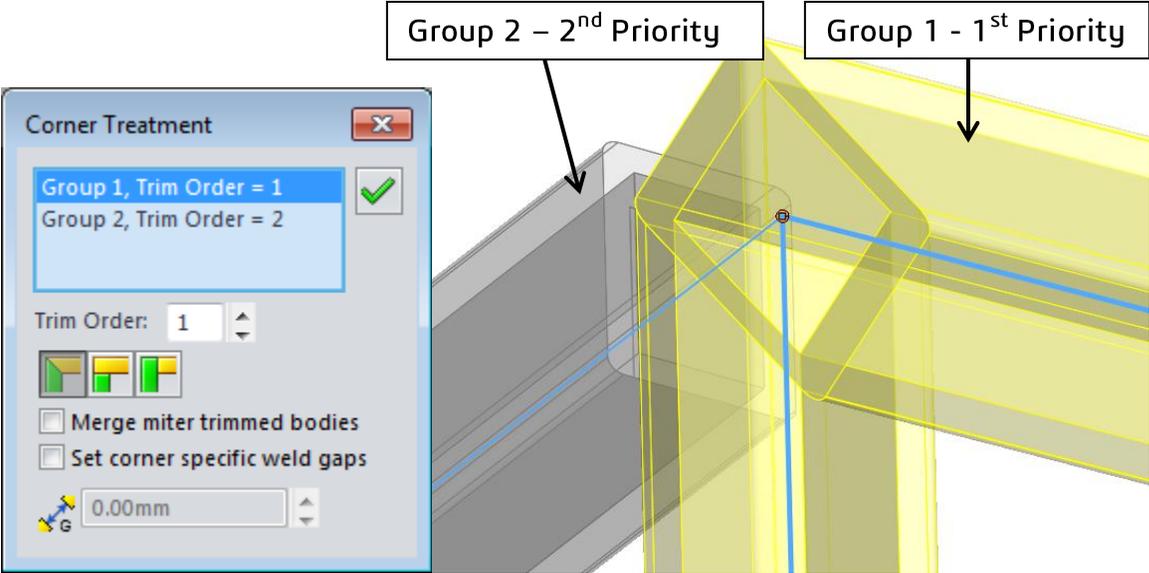
We want to create mitered ends using the Weldments Tools:



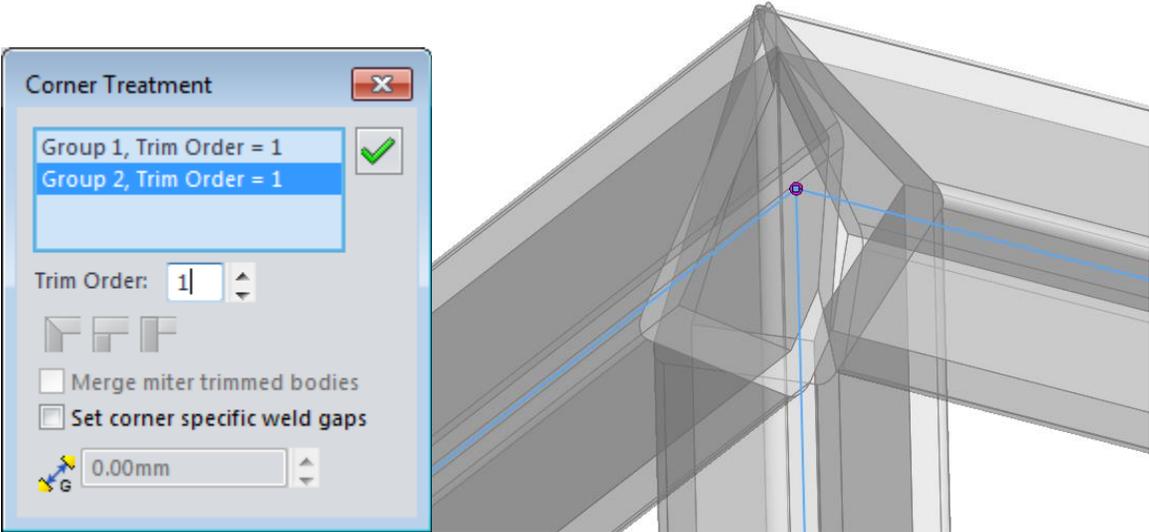
However, an attempt at doing so might result in two mitered pieces and one piece that butts against them.



This occurs because Corner Treatment gives priority to one group of Structural Members. Lower Trim Order numbers indicate that a group is trimmed first (higher priority).



We can change this by giving all groups a Trim Order of 1:



This results in the mitered edges that we were looking for.

Frequently Asked Questions

Below is a series of common questions regarding SOLIDWORKS Certifications. To peruse more FAQs, please visit the SOLIDWORKS Certification FAQ page under **Home > Support > Certification > FAQ**.

1. What is the Certified SOLIDWORKS Professional Advanced Weldments (CSWPA-WD) exam?

The CSWPA-WD exam is a comprehensive, non-proctored online exam that tests an individual's understanding of the SOLIDWORKS tools that aid in the design of Weldment components.

2. What resources do I need to take the CSWPA-WD?

The CSWPA-WD test is an online test that can be taken on any computer that has SOLIDWORKS running and a connection to the Internet. **You are responsible for providing your own working copy of SOLIDWORKS. A commercial license of SOLIDWORKS or the SOLIDWORKS Student Edition will be adequate for the exams.**

The test runs in its own client window separate from SOLIDWORKS. You can either run the exam software on the same computer as your SOLIDWORKS software or in a separate computer next to the one running SOLIDWORKS. Please note that if you are taking the test on a separate computer that you have some means to transfer files from the computer running the testing client to the computer running SOLIDWORKS. Dual monitors are recommended but not required.

As stated above, an internet connection is required for the exam. At this point there are no provisions for a stand-alone exam.

3. What is the policy on retaking the CSWPA?

There is a 30-day waiting period before retaking the CSWA and any Advanced CSWP exam. There is a 14-day waiting period before retaking any CSWP segment exam. Also, the user will be required to purchase another exam credit to retake the test.

4. What do I receive when I pass the exam?

You will receive certificates for each exam that you pass. You receive an email that directs you to our electronic certificate access page. There you can login and download your electronic certificate(s) and electronic business card logo(s); CSWPs also receive discounts to partner products and SOLIDWORKS World events. For more information refer to www.solidworks.com/cswp.

5. Can the exam be paused?

No. Once started, exams cannot be paused.

6. I took the exam and my Internet connection failed when the test ended. How do I report my results now?

The tester software will retry to connect for ~2 minutes. If the connection is still not available, an error message will be displayed and a TXT file will be saved on your desktop. The name of the file is: Tangix_TesterPro_Error_Date_Time.

Please send this file to support@tangix.com

7. Will my answers be lost if my computer crashes? Will I lose my testing credit/have to pay again if my computer crashes?

You will have to start the examination over and no refund will be available. Once you click 'take exam' your exam credit will be redeemed and we cannot refund your payment or voucher. If your computer crashes, your answers are not recoverable.

8. Which commercial version of the software should I use to take the CSWPA exams?

For all exams, the minimum version necessary is listed on the information page of that exam. Please go to <http://www.solidworks.com/certification> and click on the individual exam information page links on the left.

9. Will a certificate be mailed out to me once I pass an exam?

SOLIDWORKS no longer mails out certificates to individuals who have passed an exam. We have made it a simple download that you can print from your computer so you no longer have to wait to receive it. To print your certificate, simply visit www.virtualtester.com/solidworks/user.php. On that page, simply click the "Print My Certificate" button and follow the on-screen instructions. Please note that not all exams have printable certificates.

Helpful Sites

SOLIDWORKS Home:

www.solidworks.com

SOLIDWORKS Resource Center:

<http://www.solidworks.com/sw/resources.htm>

SOLIDWORKS YouTube Channel:

<https://www.youtube.com/user/solidworks>

MySOLIDWORKS:

my.solidworks.com

Training Pages:

<http://www.solidworks.com/sw/support/software-training-certification.htm>