

SOLIDWORKS Certification Exam Guide & Practice Test



**CSWPA-MM: Certified
SOLIDWORKS Professional
Advanced Mold Making**

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About This Guide

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

- An overview of SOLIDWORKS Certifications
- Details about the CSWPA-MM Exam
- Advice on preparing for and taking the CSWPA-MM Exam
- A Practice CSWPA-MM Exam and answer key
- Directions to useful SOLIDWORKS websites

The CSWPA-MM 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 Making
 - Drawing Tools
- CSWE: Certified SOLIDWORKS Expert
- CPPA: Certified PDM Professional Administrator

Why take the CSWPA-MM Exam?

The Mold Making certification is an industry focused exam that sets you apart as a person who has successfully demonstrated their ability to use SOLIDWORKS Mold Tools functionality with mold making industry knowledge. 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-MM Exam Details

The CSWPA-MM covers the following topics:

- Cavity Tool
- Draft Analysis
- Undercut Analysis
- Mold Cooling Problem
- Max Mold Opening
- Parting Line Creation
- Parting Surface Creation
- Runner and Sprue fill
- Shrink / Scale factor
- Shut-off Surface Creation
- Modifying Shut-off Surfaces
- Create Side Cores
- Create Tapered Interlocks
- Surfacing:
 - Ruled Surface
 - Planar Surface
 - Knit Surface
 - Filled Surface
 - Extend Surface
 - Trim Surface
 - Lofted Surface

Total Questions: 14

Total Points: 160

Points Needed to Pass: 120

Maximum Time: 2 hours

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-MM 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-MM 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 correctly in less than 30 minutes, you should be ready to take the real exam.

Taking the Real Exam

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

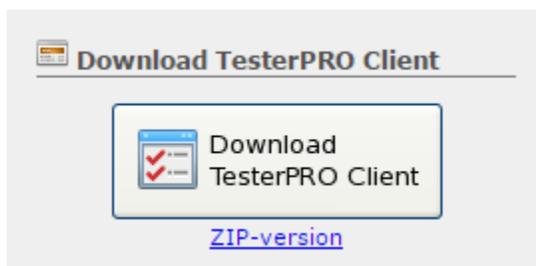
If you will be running the client on a separate computer from the one that is running SOLIDWORKS, make sure there is a way to transfer files from one computer to the other. You will be required to download SOLIDWORKS files during the real test to be able to correctly answer some of the questions.

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

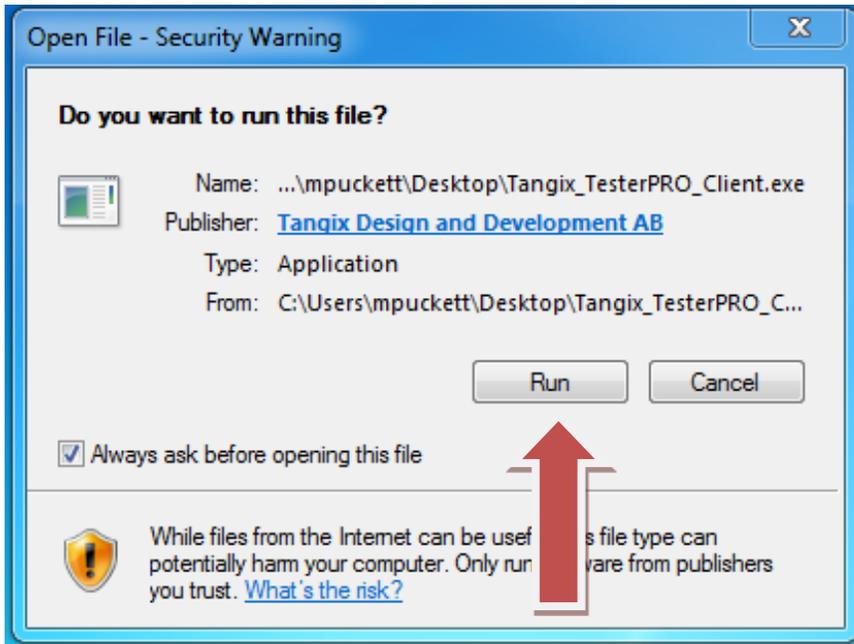
<http://my.SOLIDWORKS.com/mylearning/lessons/489/installing-and-viewing-the-test-software>

Alternatively, you may follow these steps:

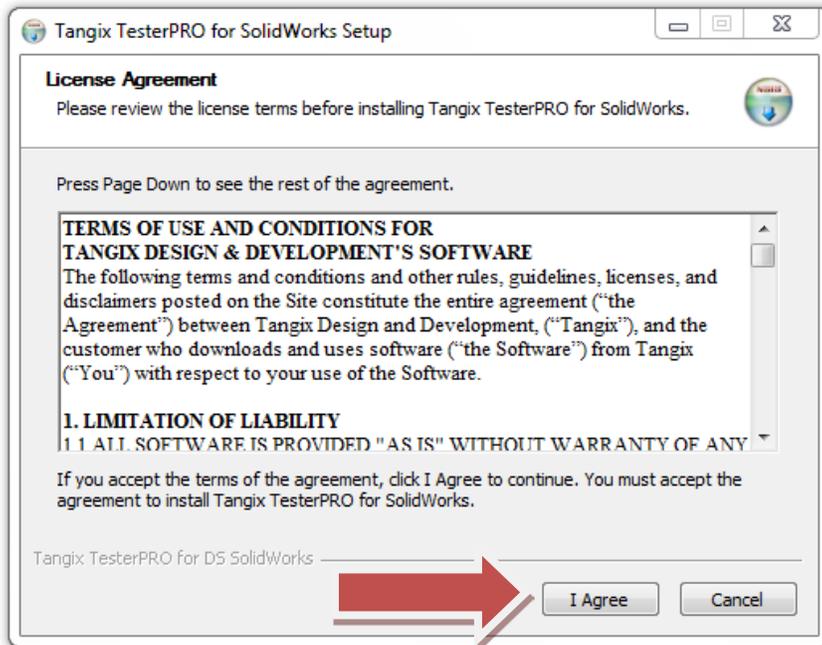
1. Visit the SOLIDWORKS VirtualTester Certification Center at <https://SOLIDWORKS.virtualtester.com/>.
2. Locate and click the button (right hand side of page) to download the Tangix TesterPRO Client:



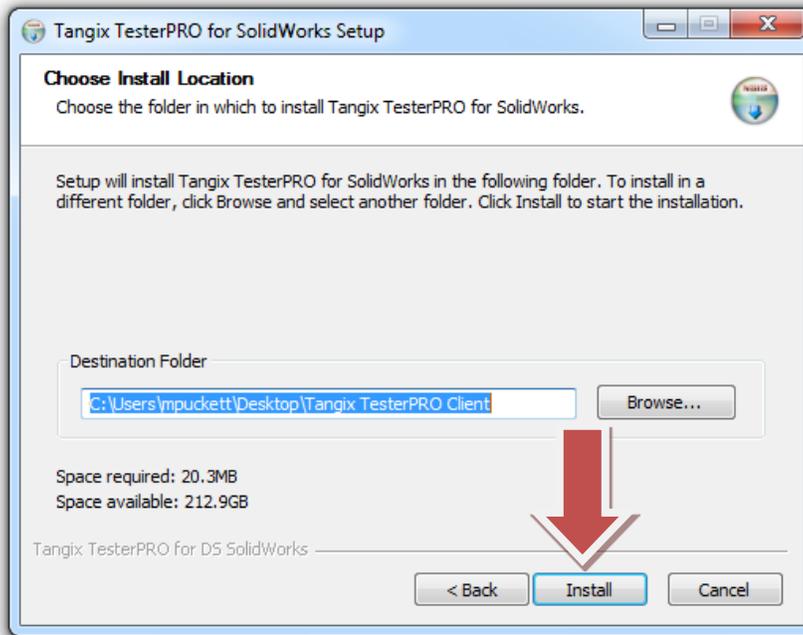
3. Open the downloaded folder and run the executable file:



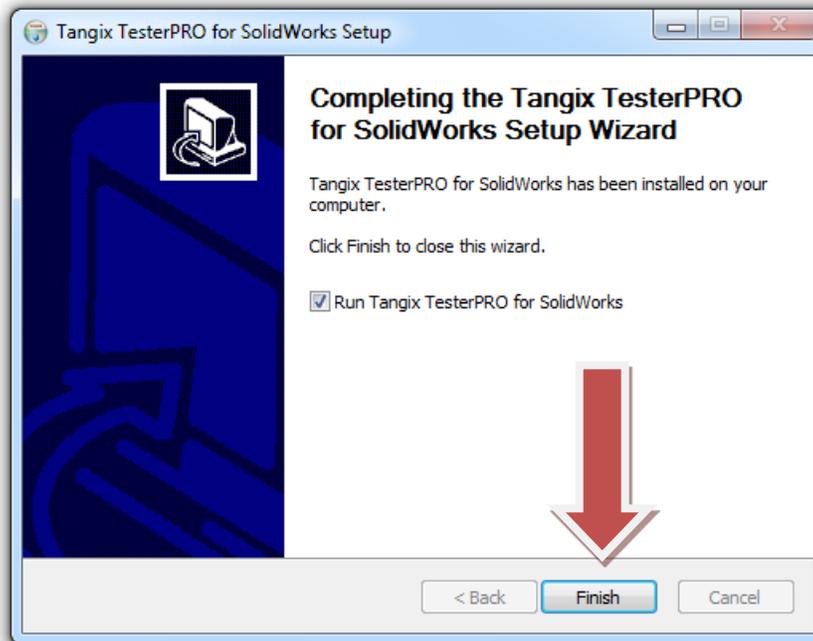
4. Agree to the License Agreement.



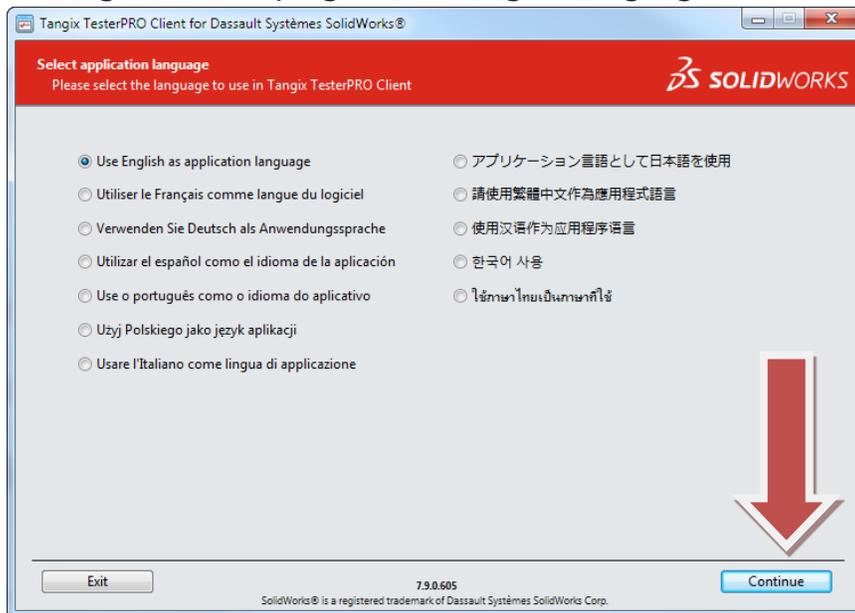
5. Click the install button.



6. Click the finish button.

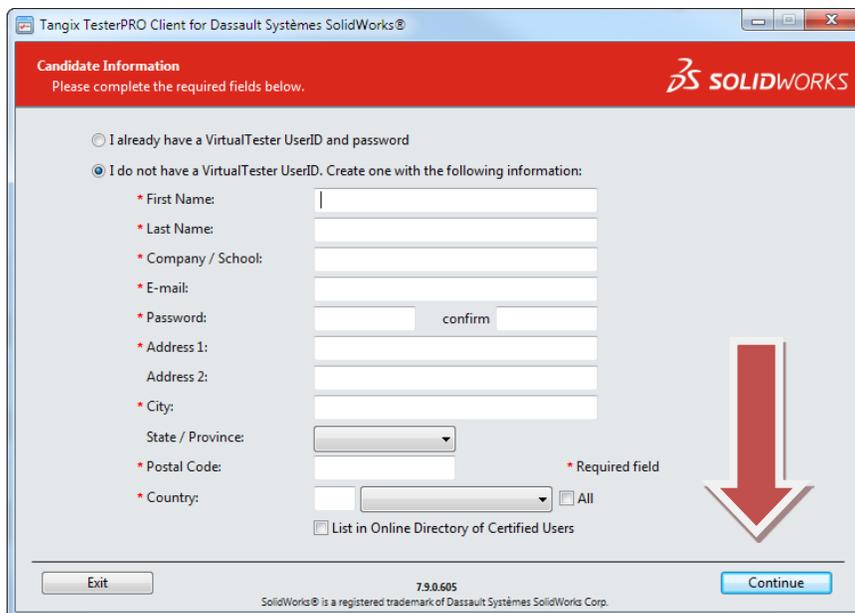


7. When you run the program, select your language and click Continue.



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

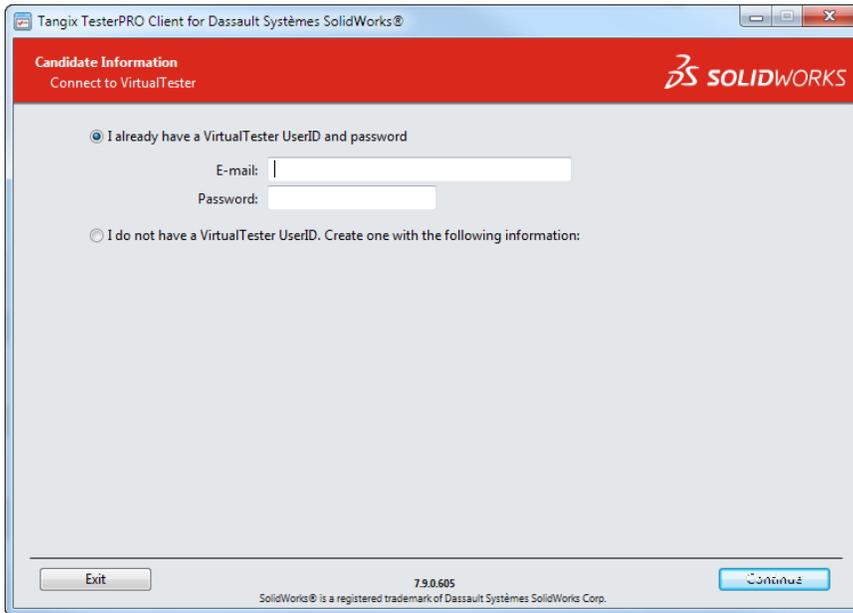
8. If this is your first exam, you will need to create an account. Fill in the required fields and click continue:



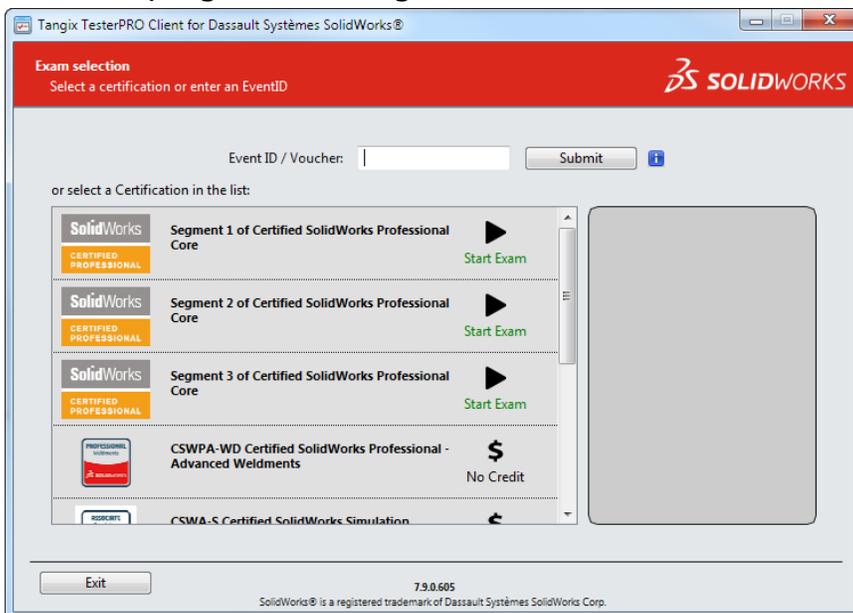
Write down your login credentials for future use!

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.



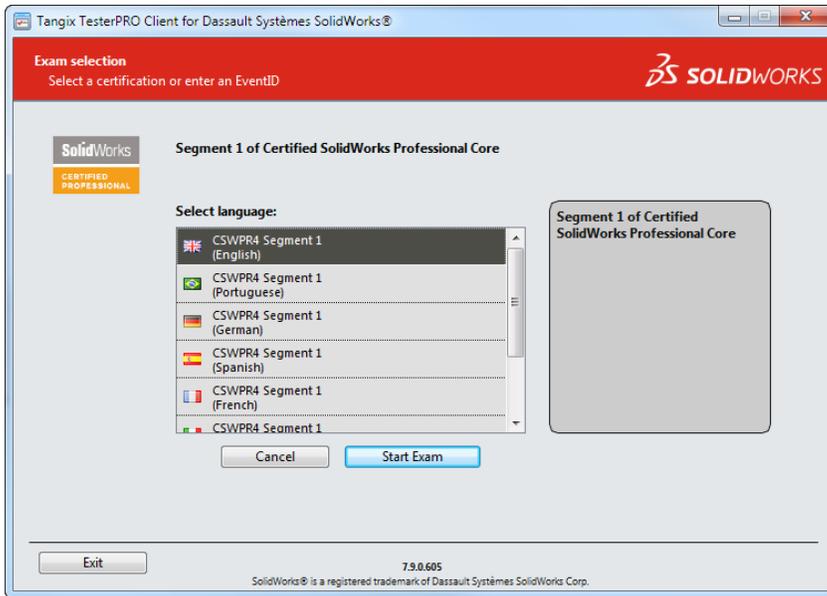
10. On the exam selection page select an exam that has the words 'Start Exam' next to it (only exams that you have credits for will show as available):



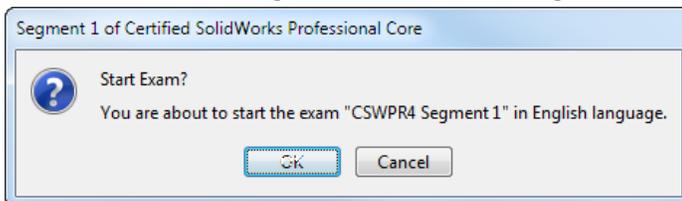
If you do not have credit for the exam, do one of the following:

- 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**.

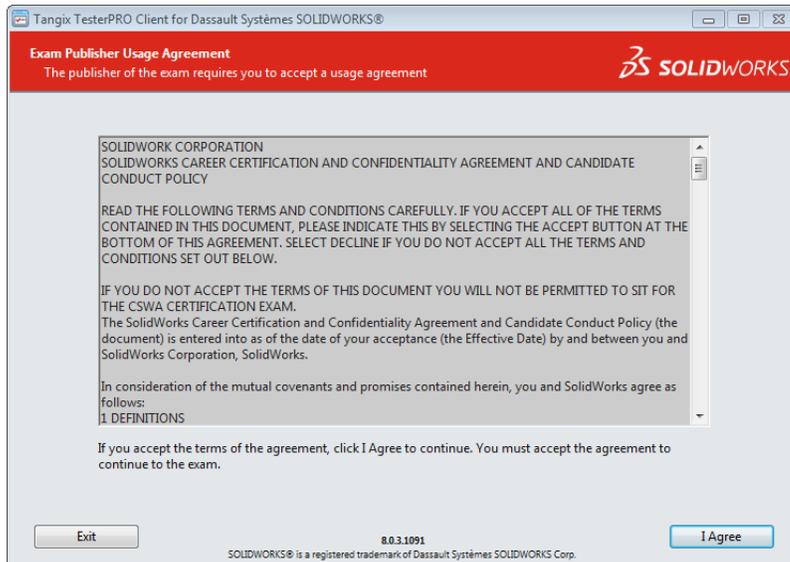
11. You may be asked to select a language. Select a language and click "Start Exam."



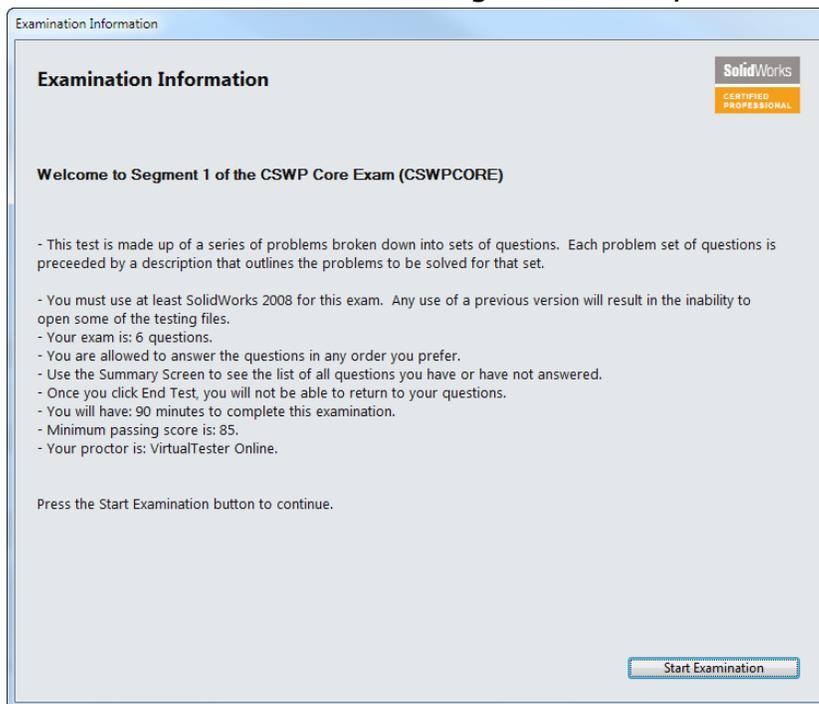
12. Confirm the exam you are about to begin:



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



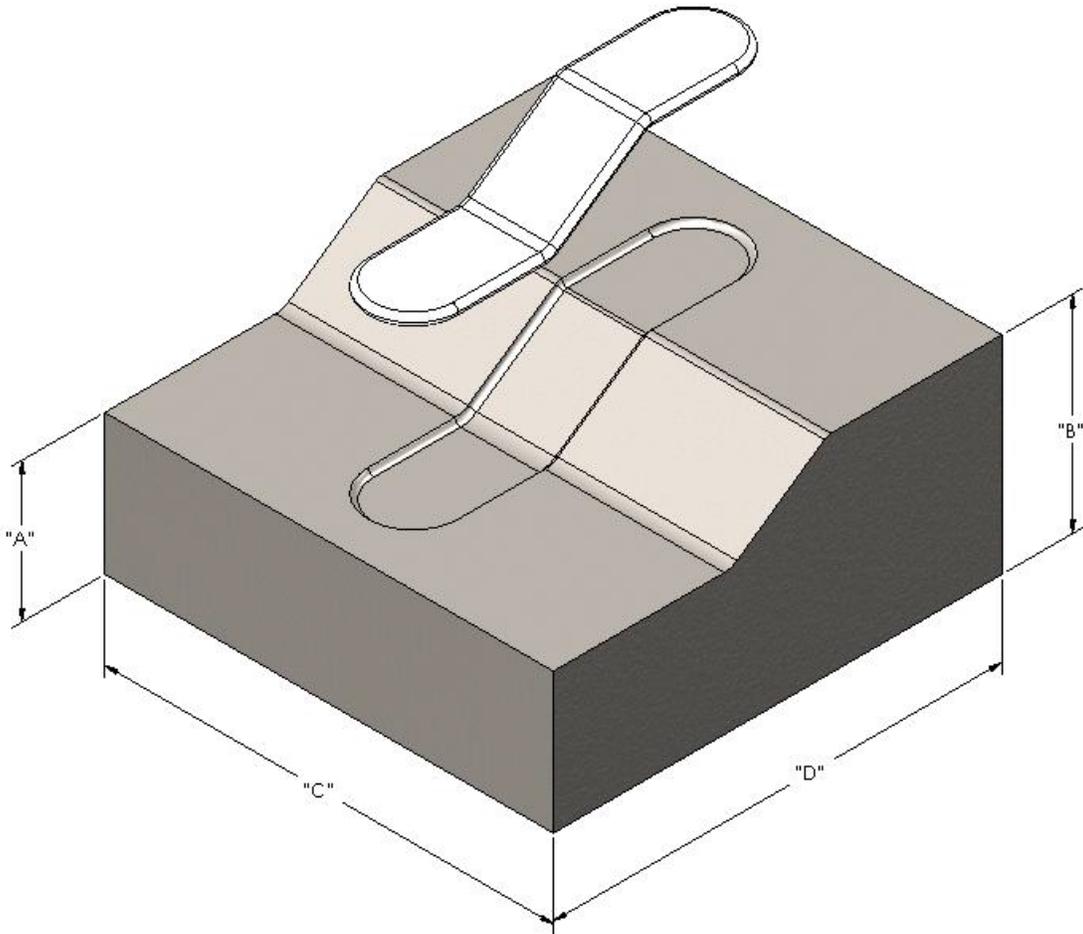
14. On the Examination Information page, read the information and then click "Start Examination", this will begin the timed portion of your exam.



The practice exam begins on the next page.

Test Questions

Use this image for Question 1.



1. Cavity Block

Create a cavity block for the part “bracket” found in the zip file of this sample exam. Use the parting line tool to create the shut off surface for the part, and then create the cavity block.

Cavity Block Material: Cast Stainless Steel

Density: .27818 lb/in³ (stock SolidWorks Material density)

Units: Inches

Mass: Pounds

A= 3.125

B= 4.625

C= 10.000

D= 10.000

What is the mass of the cavity block in pounds?

A. 107.078

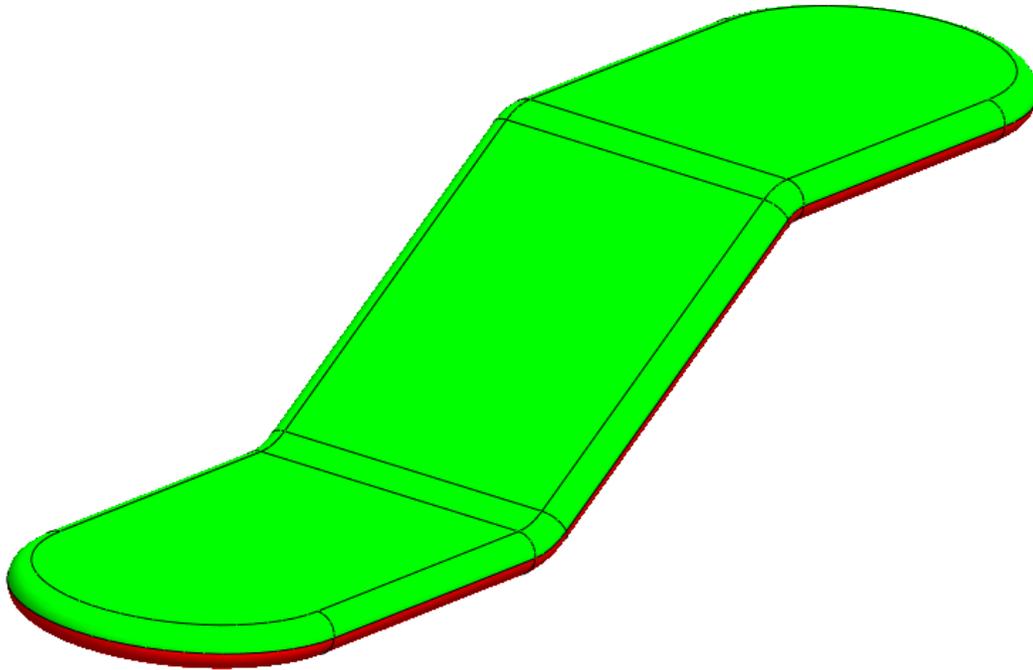
B. 107.028

C. 107.538

D. 107.052

Hint: You must use the parting line tool to get the correct parting line, especially in the transition areas where the part changes angles. If you try to fake the parting line, the part will not get split at the correct location, and the mass of your cavity block will be off. Don't forget to always add the correct material to your cavity block to ensure the mass is correct. In the real exam, this is not a multiple choice question and you are only allowed a 0.015 lbs. tolerance on the resulting mass of the block.

Use this image for Question 2.



2. Draft Analysis

Perform a draft Analysis on the bracket part.

Direction of pull: Top Plane

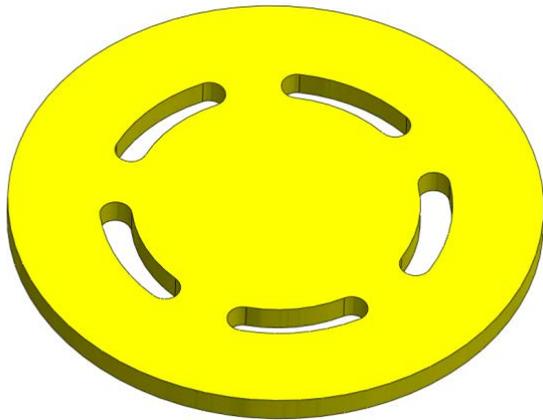
Draft Angle: 1.00 Degrees

How many negative draft faces does the part have?

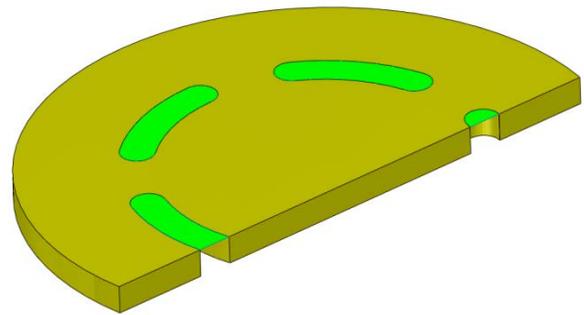
- A. 16
- B. 15
- C. 0
- D. 17

Hint: Make sure you understand the available options in the Draft Analysis tool.

Use these images for Question 3.



Without Shut-off Surface



With Shut-off Surfaces

3. Shut-off Surface Creation

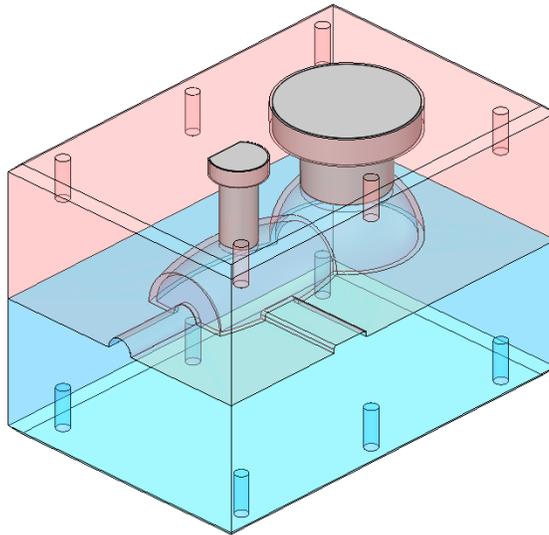
Open the part "Puck" found in the zip file of this sample exam and create shut-off faces for the five openings as shown.

What is the measured surface area of the five shut-off faces in inches²?

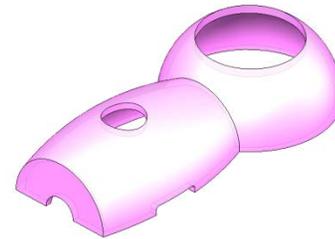
- A. 1.9634
- B. 1.9242
- C. 1.9315
- D. 1.9245

Hint: Use the measuring tool to get the surface area calculation. Also using the Shutoff faces tool will automate the face creation process to save you some time.

Use these images for Question 4.



Mold Assembly



Virtual Molded Part

4. Create a virtual molded part.

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

-Unzip the attached file: Camera-Body.zip

-Use the attached mold assembly to create a virtual molded part.

-Apply the following material and properties:

Material: ABS

Density: .0368498 lb/in³

Shrink Rate: 0.006

-Remove any flash (if present) from the virtual molded part.

What is the overall mass of the part after it has gone through the plastic injection molding process? (grams)

- A. 9.58
- B. 11.33
- C. 11.54
- D. 11.75

-Hint: Before measuring the overall mass, you must apply the appropriate scale factor to the virtual molded part to compensate for the Shrink Rate.

This virtually molded part exercise can be completed a few different ways. One solution is to insert a virtual part in the mold assembly that would only encompass the sub-assembly area of the design. Then use the cavity feature. That would remove all of the sub-assembly parts and you will be left with the shape of what is filling the cavity area of the mold itself. This helps to ensure there isn't any flash issues that would be caused by insert lines or parting lines mismatching. It is also helpful in spotting potential flash areas around ejector pins.

Use these images for Question 5.

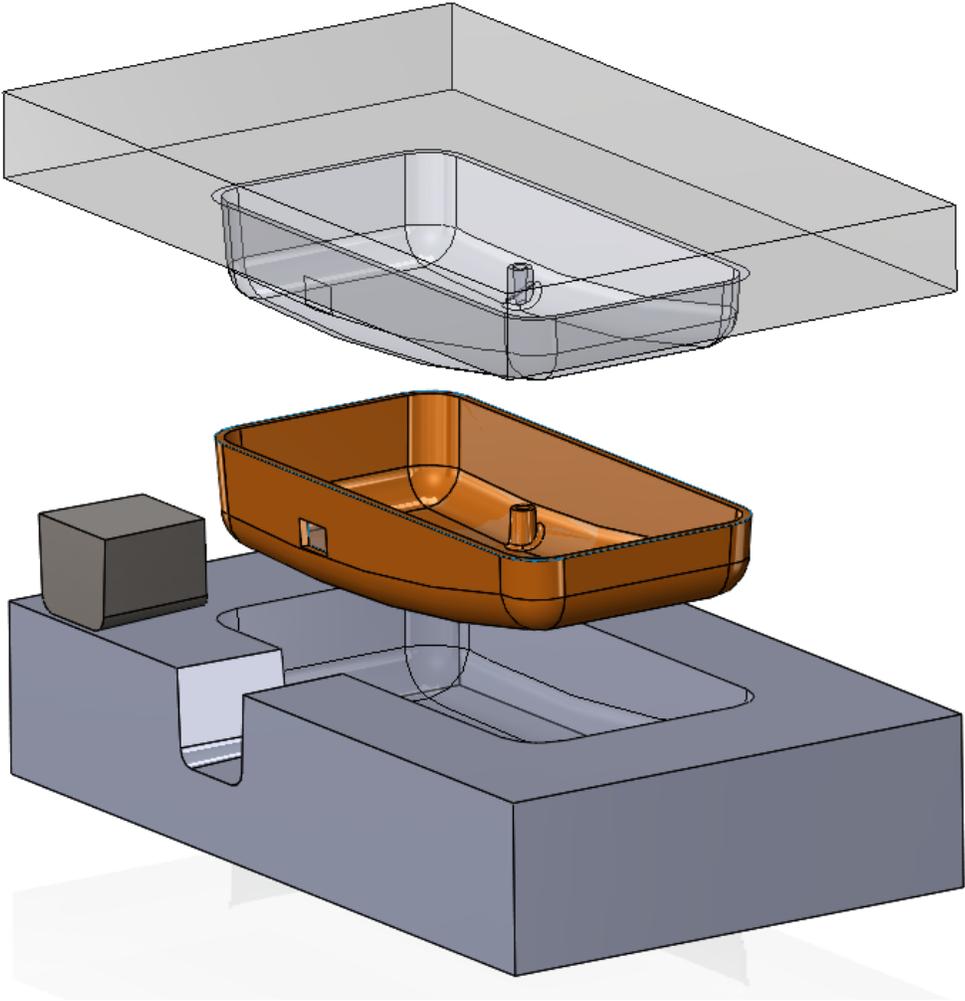


image 5a

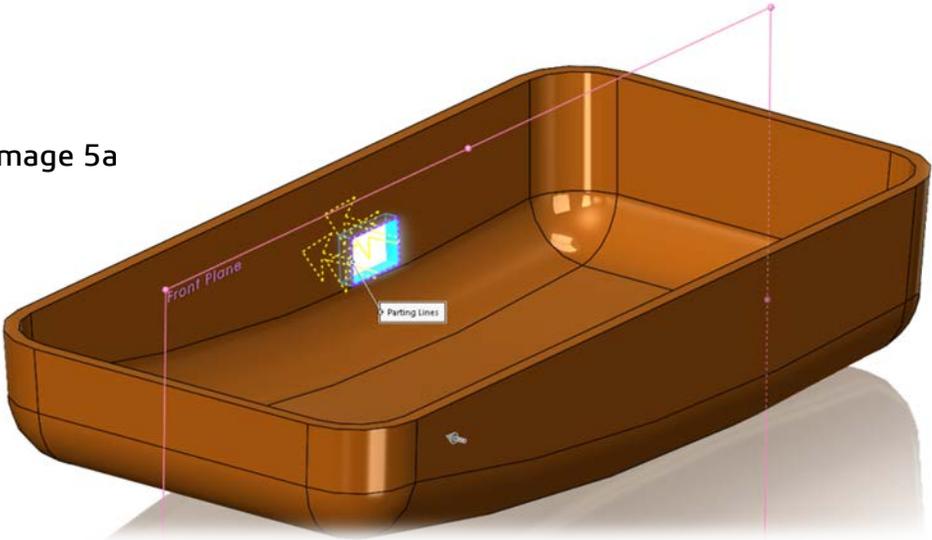


image 5b

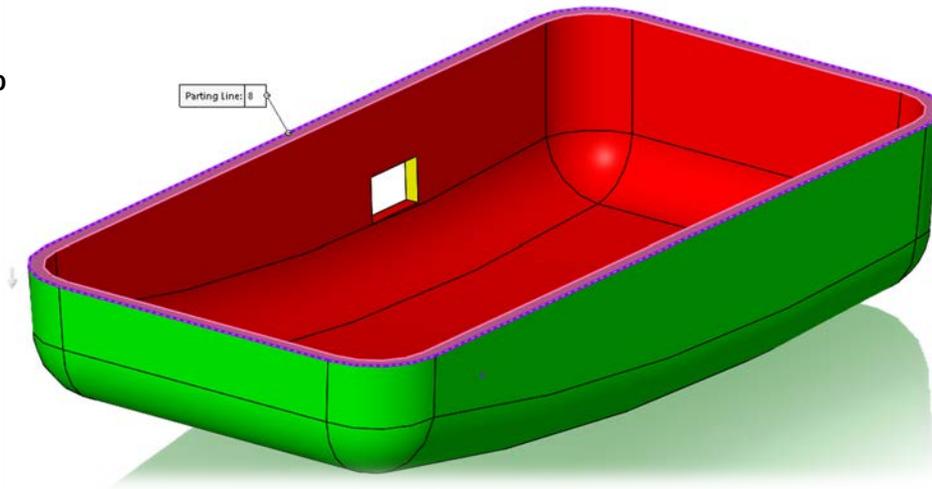


image 5c

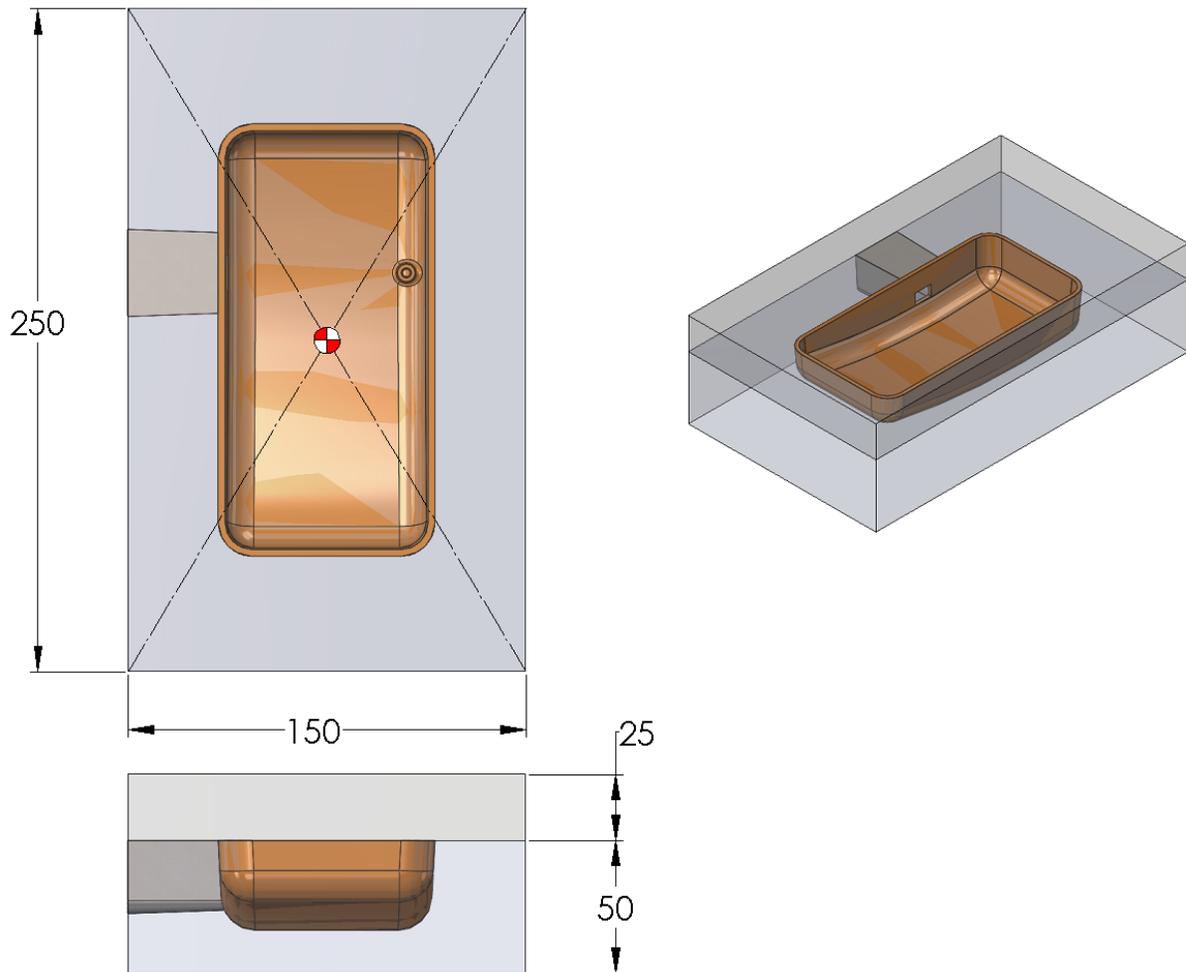
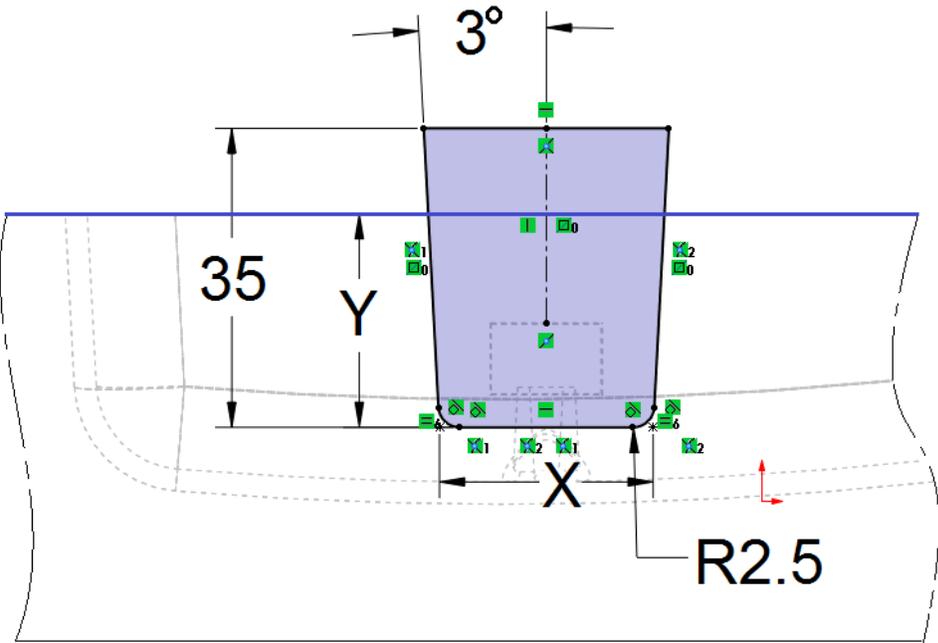


image 5d



5. Side Core Creation

Unit system: MMGS (millimeter, gram, second)

Decimal places: 2

In this problem set, you will open a part file that was sent to you from a customer. You will need to add draft, compensate for the material shrink rate, design a core and cavity block, and then design a side core insert.

-Open the file "Side_Mirror" found in the zip file of this sample exam.

-Add Draft to the side hole. (refer to image 5a)

For Type of Draft, use: Parting Line.

Draft Angle: 2.00 deg.

Direction of Pull: Front Plane.

Parting Lines: Select the inside edges of the side hole feature, see image.

Hint: There are 4 edges that need to be selected.

-Scale the part accordingly to account for the material shrink rate.

Material Shrink Rate: 0.03

Hint: Scale the part about its Centroid. Select Uniform scaling.

Set the Scale Factor to 1.03

-Use the drawing and dimensions to create a core and cavity block.
(refer to images 5b and 5c)

Direction of Pull: Select the thickness face.

Draft Angle: 2.00 Degree

-Create a side core insert.

Use "X" and "Y" dimensions listed below with image 5d, to create the side core bounding sketch on the Front plane.

X = 25.0

Y = 25.0

Extraction Direction: Front Plane

Body to Extract from: Cavity

Draft angle: 2 degrees

Draft outward: Yes

Depth Along Extraction Direction: Through All.

Depth Away from Extraction Direction: 0 mm

-Apply the following material properties to the side core insert:

Material: Stainless Steel

Density: .281793 lb/in³

What is the overall mass of the side core insert? (grams)

A. 221.73

B. 141.37

C. 200.24

D. 185.14

Hint: See next page for a 3D PDF of the model.

END OF TEST

Click center page to activate 3D PDF.

Answer Key

- 1) A
- 2) D
- 3) B
- 4) B
- 5) A

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 Mold Making (CSWPA-MM) exam?

The CSWPA-MM exam is a comprehensive, non-proctored online exam that tests an individual's ability to use SOLIDWORKS Mold Tools functionality with mold making industry knowledge.

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

The CSWPA-MM 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-MM?

There is a 30-day waiting period before retaking the CSWPA-MM exam. The user will also 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>