

Practice Item Guide

Virginia Standards of Learning

Grade 8 Mathematics

Revised March, 2011
Pearson

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OVERVIEW

Items measuring the new 2009 *Mathematics Standards of Learning* (SOL) will be field-tested in spring 2011 and will become operational in the 2011-2012 school year. In preparation for the implementation of items measuring the content in the 2009 Mathematics SOL, practice items are being provided to school divisions. These practice items provide examples of the new content and increased rigor represented by the 2009 SOL and illustrate the new Technology-Enhanced Item (TEI) types. Technology-Enhanced Items are items which are presented in various formats that allow students to indicate their responses in ways other than multiple-choice format.

Please note that the practice items are not intended to be a complete test and are not intended to cover all mathematics content for the grade level or course. Furthermore, while the practice items provide examples of some TEI, they are not intended to represent all types of functionality associated with these item types.

Students will have the opportunity to practice these items via an online electronic Practice Assessment Tool (ePAT). The ePAT is a stand-alone program that simulates an online SOL assessment without requiring an internet connection. Except for the process of entering appropriate authentication information (login ID, password, test code), the ePAT application will closely simulate the TestNav™ SOL assessment experience. This practice guide may be used by teachers or other adults to guide students through the practice items for grade 8 mathematics. While the use of this guide with the practice items is not required, it is strongly encouraged, as it will help to ensure that students are familiar with the types of items that they may encounter.

Prior to guiding students through the practice items, carefully read this practice item guide and review the practice items to become familiar with them. All directions that must be read aloud to the students are in **bold Arial font** so that they stand out from the rest of the text. All other text is for your information and should not be read to students.

When the student is finished with the practice item set, the student may close it by clicking *Save and Exit* or *Submit* on the bottom of the Item Review screen. Both buttons will produce a series of prompts to close the application. Directions read aloud to the students will tell them to use the *Submit* button. The practice items will not be scored; however, the correct answers are provided in this guide with each question.

NEW TECHNOLOGY-ENHANCED ITEM TYPES

The SOL practice items for grade 8 mathematics will introduce four new Technology-Enhanced Item types: drag and drop, hot spot, short response, and graphs. A brief description of each is provided.

Drag and Drop

Drag and drop items contain draggers and drop zones.

- Draggers are the answer options that are moved to drop zones in response to the question.
- Drop zones are areas of an item where draggers will remain once moved there.

Drag and drop items require a student to respond by moving one or more draggers from one place on the screen into a drop zone(s) elsewhere on the screen.

The student will click on the dragger and keep the button down while moving the dragger to the desired location. Once the button is released, the dragger will be in the new location.

Hot Spot

Hot spot items contain hot spot zones which represent student answer options.

- Hot spot zones are answer options which may be objects, graphic elements, or text labels which are selected in response to a question.
- **Unlike a traditional multiple-choice item where only one answer option is correct, hot spot items will require the student to select one or more hot spot zones (answer options) in order to correctly answer the item.**

The student selects a hot spot by clicking on it. There will be an indication on the screen, such as the zone being outlined in orange or a red star, which confirms that a hot spot zone has been selected.

Short Response

Short response items contain a text entry field. For this item type, the student responds to a question by typing a response into a blank box that is provided in the item.

- Some response boxes may limit the characters that can be entered. For instance, if the response is expected to be numeric, the student will not be able to enter letters.
- A response typically is no more than six characters long.
- Students should carefully follow directions on short response items, such as providing an answer in simplest form, or rounding a number as indicated.

Graphs

Graphing items require students to create or complete some type of graph. The graphs presented will vary by grade or course level. Bar graph items allow students to set the height or length of a bar. The student's response is indicated by the height or length of the bar(s) in relation to the image/graph. If the orientation of the bar is vertical, the student can click above or below a location to change the height of the bar. If the orientation of the bar is horizontal, the student can click to the left or right of a location to shorten or lengthen the bar. The bar will move to the location where the student clicks.

Some items require the student to graph point(s) on a line, grid, or image. The student's response is the location of the point(s) in relation to the line, grid, or image. These types of items may include graphing points on a number line, graphing ordered pairs on a grid, or graphing inequalities.

INSTALLING THE ePAT LAUNCHER

If the computer being used to take the SOL practice item set already has the ePAT Launcher installed, please proceed to page 8. For computers without the ePAT Launcher previously installed or if you are unsure whether the ePAT launcher has been installed, continue with the steps below. Work with your technology staff in your school division if you are unable to install software on a computer in your school. Administrative access to the computer may be needed. Further instructions for installing the ePAT Launcher can be found under the “Resources” tab on the PearsonAccess website listed in step 1.

1. Go to the Virginia PearsonAccess website:
<http://www.pearsonaccess.com/cs/Satellite?c=Page&childpagename=Virginia/vaPALLayout&cid=1175826755281&pagename=vaPALPWrapper>
2. Under the “ePAT Launcher” heading, click the “Install Launcher (Windows)” or “Install Launcher (Mac Intel)” link depending on the type of computer workstation being used.



Practice Assessment Tools

ePat Launcher
Make sure you download and install the ePat Launcher before using the tools listed below.

- [Install Launcher \(Windows\)](#)

OR



Practice Assessment Tools

ePat Launcher
Make sure you download and install the ePat Launcher before using the tools listed below.

- [Install Launcher \(Mac Intel\)](#)

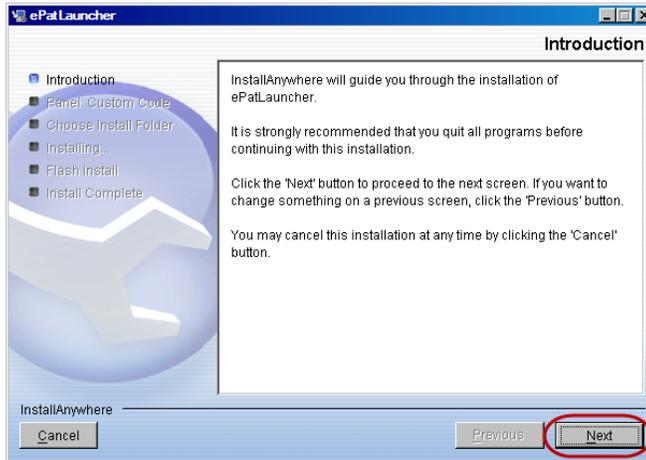
3. Click “Run” to continue. The file will start to download.



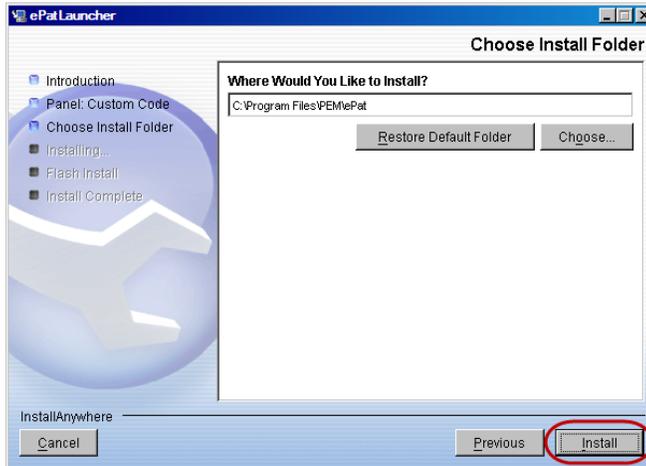
4. When the download is complete, click “Run” to continue.



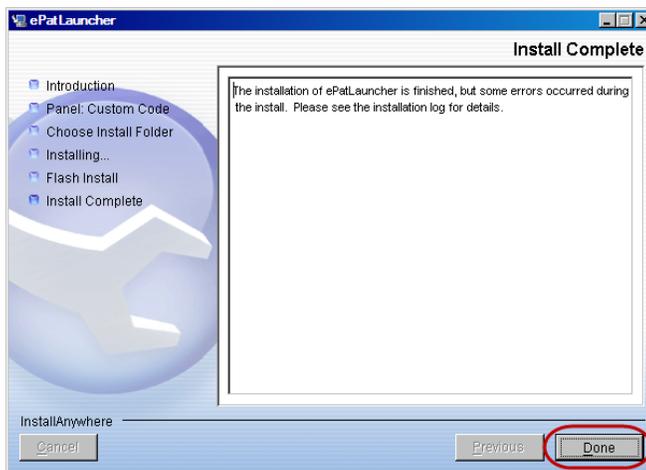
5. The ePAT Launcher installation will begin. Click “Next” to continue.



6. Choose an install folder and then click “Install” to continue.



7. The installation begins. When the install is complete, click “Done.”



DOWNLOADING VASOL MATH PRACTICE ITEMS

1. Go to the Virginia Department of Education website:
<http://www.doe.virginia.gov/instruction/mathematics/resources.shtml>
2. Under the heading “Standards of Learning Assessment Resources” click on “SOL Practice Items and Practice Item Guides.”
3. Click on the specific practice item set you wish to download. Download the items compatible with your computer’s operating system.
4. Click “Run” to continue. The file will start to download.
5. When the download is complete, click “Run” to continue.
6. The ePAT installation will begin. Click “Next” to continue.
7. Choose an install folder and then click “Install” to continue.
8. The installation will begin. When the install is complete, click “Done.”
9. If you wish to download additional practice items, return to step 2 above.

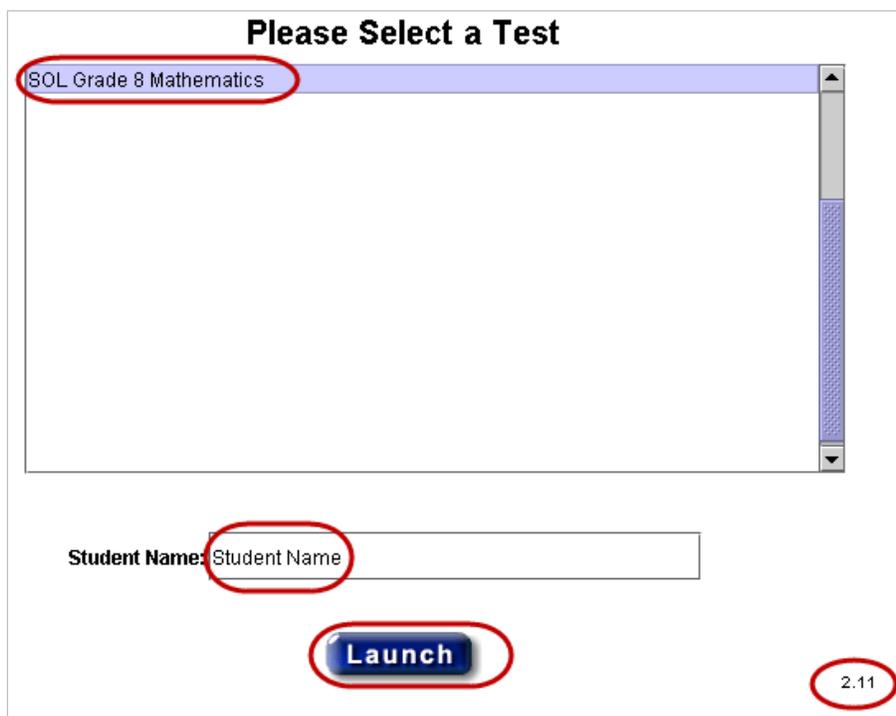
START THE ePAT LAUNCHER

Desktop Icon

1. Double-click the ePAT Launcher icon on the workstation desktop to start the program.



2. Check the version number in the bottom right corner of the screen. If the version number is anything other than 2.11, you will need to install the latest version of the ePAT Launcher. Refer to the “INSTALLING THE ePAT LAUNCHER” section on page 5 for instructions on how to do this.
3. Click the “SOL Grade 8 Mathematics” practice item set to highlight it.
4. Complete the Student Name field.
5. Click the “Launch” button.
6. Go to the appropriate section in this guide for the practice item set directions.



MATERIALS NEEDED FOR COMPLETING VASOL PRACTICE ITEMS

Mathematics: Scratch paper and pencil and hand-held scientific calculator.

ONLINE TOOLS AVAILABLE FOR COMPLETING ITEMS

Eliminate Choice – Use the eliminate choice tool to mark choices that you do not wish to consider.

Highlighter – Use the highlighter tool to highlight text or graphics.

Straightedge – Use the straightedge tool to draw straight lines.

Eraser – Use the eraser to remove lines or highlights.

Ruler – Use the ruler tool to measure something on screen.

Exhibits – Use the Exhibits tool to access the grade 8 formula sheet.

Additional information and demonstrations of each tool on the toolbar can be found by clicking the  question mark symbol located at the top of the ePAT screen. To display help on a specific tool, click the tool name in the drop-down list.

SPECIFIC DIRECTIONS FOR THE SOL GRADE 8 MATHEMATICS PRACTICE ITEMS

Introduction

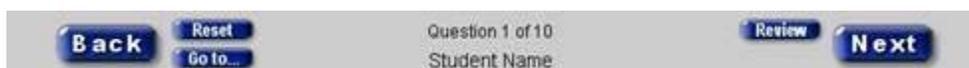
After the practice items are launched, the first practice item will be displayed. Read the following instructions to the students.

SAY Today you will be working on some grade 8 mathematics practice items for the Virginia Standards of Learning assessment. There are 10 questions that will show you some of the types of test items that will be administered as part of the new mathematics assessments. Listen carefully as I read the directions for these practice items. I will guide you through each item one at a time. Some questions will be multiple choice and some questions will require you to show your answer in another way, such as typing your answer in a box or clicking and dragging your answer to a specific location. Please remember that the questions you will see are practice questions. They will not be scored, but I will tell you the answer for each question.

Do you have any questions before we start?

Pause to answer questions.

SAY Navigation buttons appear at the bottom of the screen for each question. If you do not see the navigation buttons, you need to scroll down to reveal them. A scroll bar will appear on the right side of the window. Notice that the question numbers are also located at the bottom of the screen. For example, the screen with the first question reads “Question 1 of 10.”



SAY Notice the buttons located at the bottom of the screen.

Pause to review the buttons in the chart below with the students.

| Button | Purpose |
|---------------|--|
| <i>Next</i> | Goes to the next screen |
| <i>Back</i> | Goes back a screen |
| <i>Reset</i> | Clears your answer choice |
| <i>Review</i> | Marks the question so you can go back and look at it again |
| <i>Go To</i> | Goes to a review screen |

SAY At any time during the administration of the practice items, you may click on the *Review* button located at the bottom of the screen to select that question to review later. When you reach the end of the practice items, there will be a review screen. It will show you which questions you have not answered and which questions you have marked for review.

Look at question 1 on your screen.

Check to see that the students are looking at the first question.

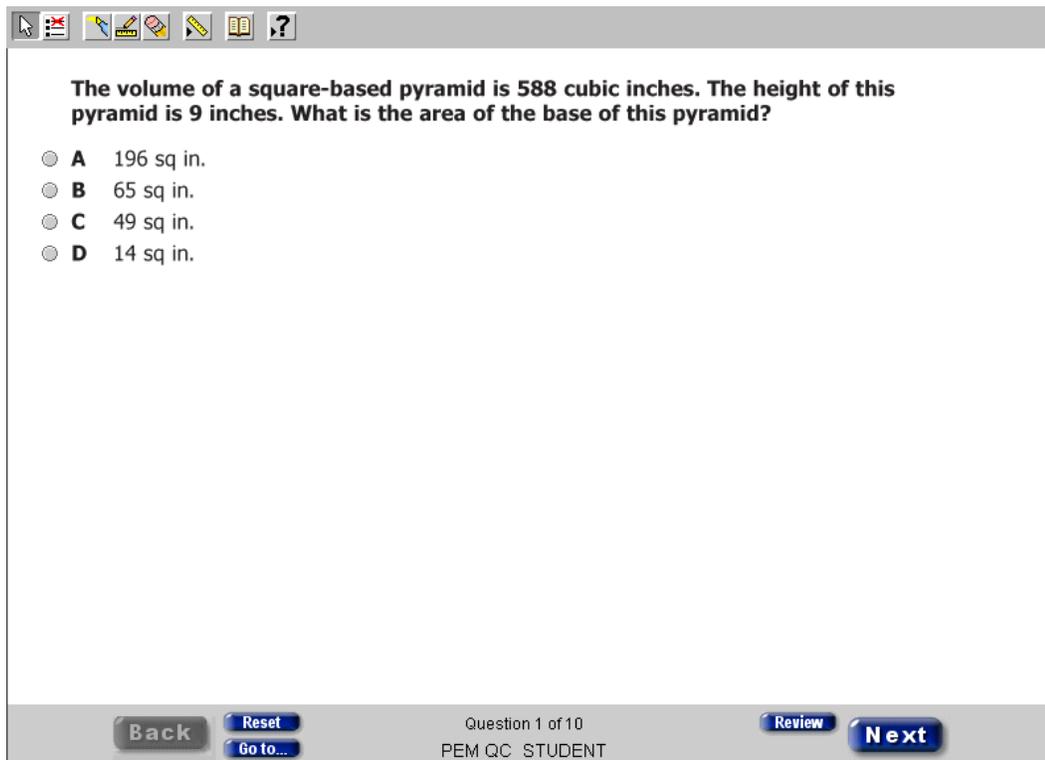
SAY Some of the tools you can use are in the toolbar at the top of the screen. Information about each tool on the toolbar is available by clicking the question mark symbol (). Click on the question mark symbol now. To display help on a specific tool, click the tool name in the drop-down list. Take a moment to click on the different tools. You will have an opportunity to use these tools while you work through the practice items.

Pause while students explore the tools on the toolbar. Offer assistance, as needed.

SAY Read question 1 to yourself.

If a student’s IEP provides for a read-aloud accommodation, then all questions should be read to the student.

Pause while students read the question.



The screenshot shows a toolbar at the top with icons for a mouse, a list, a pencil, an eraser, a highlighter, a calculator, a formula sheet, and a question mark. Below the toolbar is a question box with the following text:

The volume of a square-based pyramid is 588 cubic inches. The height of this pyramid is 9 inches. What is the area of the base of this pyramid?

Below the question are four radio button options:

- A 196 sq in.
- B 65 sq in.
- C 49 sq in.
- D 14 sq in.

At the bottom of the interface is a navigation bar with buttons for "Back", "Reset", "Go to...", "Review", and "Next". In the center of the navigation bar, it says "Question 1 of 10" and "PEM QC STUDENT".

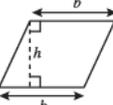
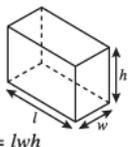
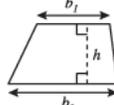
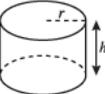
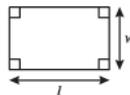
SAY Question 1 requires the use of the grade 8 formula sheet. Click on the Exhibit tool icon () on the toolbar to view the grade 8 formula sheet.

The volume of a square-based pyramid is 588 cubic inches. The height of this pyramid is 9 inches. What is the area of the base of this pyramid?

A 196 sq in.
 B 65 sq in.
 C 49 sq in.
 D 14 sq in.

Grade 8 Mathematics Formula Sheet

Geometric Formulas

| | | | |
|---|---|---|---|
|  $A = \frac{1}{2}bh$ |  $A = bh$ |  $V = lwh$ $S.A. = 2lw + 2lh + 2wh$ |  $V = \frac{1}{3}\pi r^2h$ $S.A. = \pi rl + \pi r^2$ |
|  $p = 4s$ $A = s^2$ |  $A = \frac{1}{2}h(b_1 + b_2)$ |  $V = \pi r^2h$ $S.A. = 2\pi rh + 2\pi r^2$ |  $V = \frac{1}{3}Bh$ $S.A. = \frac{1}{2}lp + B$ |
|  $p = 2l + 2w$ $A = lw$ |  $C = 2\pi r$ $A = \pi r^2$ |  $c^2 = a^2 + b^2$ | |

Abbreviations **Pi**

SAY Use your scratch paper, calculator, and formula sheet to determine which answer is correct.

Pause while students work to find the answer to the question.

SAY Click the X in the upper right corner of the formula sheet to put the grade 8 formula sheet away. Now click on the answer you have chosen.

Wait for students to put the tool away and choose their answer.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is A, 196 sq. in. The circle next to choice A should be selected since this is the correct answer.

Do you have any questions about how to select an answer or how use the Exhibit tool?

Answer questions about how to click to select an answer or use the tools. Since these are practice items, it is acceptable to give assistance or discuss how to find the correct answer to any question.

SAY Click *Next* at the bottom of the screen to continue to the next question.

Wait for students to click *Next*. Check to see that the students are looking at the correct question.

SAY Read question 2 to yourself.

Pause while students read the question.

The screenshot shows a digital math test interface. At the top, there is a toolbar with icons for a mouse cursor, a red X (eliminate choice), a pencil (scratch paper), an eraser, a calculator, a document (scratch paper), and a question mark (help). The main area contains the question: "What value of p makes this equation true?" followed by the equation $2p = \frac{-3p-6}{4}$. Below the equation are four multiple-choice options: A $\frac{6}{5}$, B $\frac{6}{11}$, C $-\frac{6}{11}$, and D $-\frac{6}{5}$. At the bottom, there is a navigation bar with buttons for "Back", "Reset", "Go to...", "Question 2 of 10", "PEM QC STUDENT", "Review", and "Next".

SAY Use your scratch paper and calculator to decide which answer is correct. At the top of the toolbar, click on the second button, the one with the red X ()

This is called the eliminate choice tool. Selecting this tool will change your cursor to an arrow with a red X next to it. You can use this tool to eliminate as many choices as you want. To eliminate an answer, click the choice you believe is not correct.

Pause while students practice using this tool.

What value of p makes this equation true?

$$2p = \frac{-3p - 6}{4}$$

A $\frac{6}{5}$
 B $\frac{6}{11}$
 C $-\frac{6}{11}$
 D $-\frac{6}{5}$

Question 2 of 10
PEM QC STUDENT

Back Reset Go to... Review Next

SAY Click the eliminate choice tool icon again to put the tool away.

Wait for students to put the tool away.

SAY If you eliminate a choice and then change your mind, use the eraser tool () on the toolbar to erase a red X. Click on the eraser tool and practice using it to remove a red X.

Pause while students practice using this tool.

What value of p makes this equation true?

$$2p = \frac{-3p - 6}{4}$$

A $\frac{6}{5}$
 B $\frac{6}{11}$
 C $-\frac{6}{11}$
 D $-\frac{6}{5}$

Back Reset Go to... Question 2 of 10 Review Next
PEM QC STUDENT

SAY Click on the eraser tool icon to put it away. Click on the answer you have chosen.

Pause while students work to find the answer to the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is C, $-\frac{6}{11}$. Click on the circle next to choice C to select this as your answer.

Do you have any questions about how to select an answer, use the eliminate choice tool, or use the eraser?

Answer all questions.

SAY Click *Next* at the bottom of the screen to continue to the next question.

Wait for students to click *Next*. Check to see that the students are looking at the correct question.

SAY Read question 3 to yourself.

Pause while students read the question.

The screenshot shows a digital math test interface. At the top, there is a toolbar with icons for navigation and editing. The main question asks: "Which graph best represents only the solutions to $-3a + \frac{1}{2} \leq 8$?" Below the question are four multiple-choice options, each with a radio button and a number line graph. The number lines range from -6 to -2 with tick marks every 1 unit. Option A shows a closed circle at -5 and a ray extending to the left. Option B shows a closed circle at -5 and a ray extending to the right. Option C shows a closed circle at -2 and a ray extending to the left. Option D shows a closed circle at -2 and a ray extending to the right. At the bottom of the interface, there are buttons for "Back", "Reset", "Go to...", "Question 3 of 10", "PEM QC STUDENT", "Review", and "Next".

SAY Determine which answer is correct. Click on the answer you have chosen.

Pause while students work to find the answer to the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is D. Do you have any questions?

Answer all questions.

SAY Click *Next* at the bottom of the screen to continue to the next question.

Wait for students to click *Next*. Check to see that the students are looking at the correct question.

SAY Read question 4 to yourself.

Pause while students read the question.

The first three steps Justin used to solve an equation are shown.

Step 1: $\frac{2}{5}x + 5 = 9$

Step 2: $\frac{2}{5}x + 5 + (-5) = 9 + (-5)$

Step 3: $\frac{2}{5}x + 0 = 9 + (-5)$

What property justifies the work between steps 2 and 3 ?

- A Distributive property
- B Additive inverse property
- C Additive identity property
- D Multiplicative inverse property

Back Reset Go to... Question 4 of 10 Review Next

PEM QC STUDENT

SAY You can use the highlighter tool on the toolbar to highlight text. To select this tool, click the icon that looks like a yellow highlighter (). Selecting the highlighter tool will change your cursor to an arrow with a highlighter next to it. Practice using the highlighter by highlighting the question above the answer choices. Click again on the highlighter tool on the toolbar to put the tool away.

The first three steps Justin used to solve an equation are shown.

Step 1: $\frac{2}{5}x + 5 = 9$

Step 2: $\frac{2}{5}x + 5 + (-5) = 9 + (-5)$

Step 3: $\frac{2}{5}x + 0 = 9 + (-5)$

What property justifies the work between steps 2 and 3 ?

- A Distributive property
- B Additive inverse property
- C Additive identity property
- D Multiplicative inverse property

Question 4 of 10
PEM QC STUDENT

Buttons: Back, Reset, Go to..., Review, Next

SAY Determine which answer is correct. Click on the answer you have chosen.

Pause while students practice using the highlighter tool and work to find the answer to the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is B, Additive inverse property. Do you have any questions about selecting the correct answer or using the highlighter tool?

Answer all questions.

SAY Click *Next* at the bottom of the screen to continue to the next question.

Wait for students to click *Next*. Check to see that the students are looking at the correct question.

SAY Read question 5 to yourself.

Pause while students read the question.

A rectangle as shown has a length of 0.9 centimeters and a width of 0.4 centimeters. A circle is drawn inside that touches the rectangle at two points.

0.9 cm

0.4 cm

Which is closest to the total area of the shaded region in the rectangle?

A 0.14 cm²

B 0.23 cm²

C 0.28 cm²

D 0.49 cm²

Question 5 of 10
PEM QC STUDENT

Back Reset Go to... Review Next

SAY Use your scratch paper, calculator, and formula sheet to determine which answer is correct. Click on the answer you have chosen. You may use the tools we have practiced: the eliminate choice, eraser, and highlighter.

Pause while students work to find the answer to the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is B, 0.23 cm². Do you have any questions?

Answer all questions.

SAY Click *Next* at the bottom of the screen to continue to the next question.

Wait for students to click *Next*. Check to see that the students are looking at the correct question.

SAY Let's read question 6 together. Question 6 says, "Rhea had a score of 70 on her first quiz and a score of 77 on her second quiz. What is the percent increase from her first quiz score to her second quiz score?" Notice that question 6 is not a multiple-choice item, but one that will require you to type in your answer.

The question is located on the left side of your screen. The directions box is on the right side of your screen. The directions box contains information on how to answer the question and may give you specific information on how to represent your answer. Always read the directions in the directions box before solving the problem.

The empty box below the question is where you will type in your answer.

Rhea had a score of a 70 on her first quiz and a score of a 77 on her second quiz. What is the percent increase from her first quiz score to her second quiz score?

%

Directions: Type your answer in the box.

Back Reset
Go to... Question 6 of 10 Review Next
PEM QC STUDENT

SAY Use your scratch paper and calculator to find the answer to this question. Then place your cursor inside the box and type your answer. Notice that the percent sign (%) is outside the gray box where you will type your answer, so you will only enter numbers into the box.

Pause while students work to find the answer to the question.

The screenshot shows a digital test interface. At the top left is a toolbar with icons for navigation and help. The main question text reads: "Rhea had a score of a 70 on her first quiz and a score of a 77 on her second quiz. What is the percent increase from her first quiz score to her second quiz score?". To the right of the question is a box containing the directions: "Directions: Type your answer in the box." Below the question is an input field with a red circle around it and a red arrow pointing to a larger empty box below it. The input field is followed by a percent sign (%). At the bottom of the interface, there are navigation buttons: "Back", "Reset", "Go to...", "Question 6 of 10", "Review", and "Next". The text "PEM QC STUDENT" is also visible at the bottom.

SAY What is the correct answer to this question?

Pause for replies.

SAY The correct answer is 10%, so you should have entered the number 10 into the box. Do you have any questions about how to type your answer in the box?

Answer all questions.

Rhea had a score of a 70 on her first quiz and a score of a 77 on her second quiz. What is the percent increase from her first quiz score to her second quiz score?

Directions: Type your answer in the box.

%

Question 6 of 10
PEM QC STUDENT

Back Reset Go to... Review Next

SAY Try entering other characters into the box, such as letters or symbols. Notice that the box will only accept numbers and a decimal point.

For any item that requires you to type your answer in a box, if a letter, number or symbol does not appear in the answer box after you've tried to enter it, then you cannot use that symbol in your answer. Make sure you pressed the correct key before deciding the symbol cannot be used.

Pause while students try to enter other characters.

SAY You can use either the backspace key on the keyboard or the *Reset* button at the bottom of the screen to clear your answer. Clear the answer box now and reenter 10, which is the correct answer to this problem.

Pause while students clear the answer box and retype 10.

The screenshot shows a digital math practice interface. At the top, there is a toolbar with icons for navigation and help. The main area contains a question: "Rhea had a score of a 70 on her first quiz and a score of a 77 on her second quiz. What is the percent increase from her first quiz score to her second quiz score?". To the right of the question is a box with the directions: "Directions: Type your answer in the box.". Below the question is an empty input field followed by a percent sign (%). At the bottom of the interface, there are several buttons: "Back", "Reset" (circled in red), "Go to...", "Question 6 of 10", "PEM QC STUDENT", "Review", and "Next".

SAY Do you have any questions about how to type an answer in the box or how to change your answer?

Answer any questions.

SAY Click *Next* at the bottom of the screen to continue to the next question.

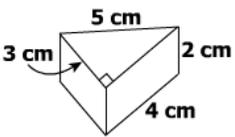
Wait for students to click *Next*. Check to see that the students are looking at the correct question.

SAY Read question 7 to yourself. Notice that question 7 is not a multiple-choice item, but one that will require you to type in your answer. The question is located on the left side of your screen. The directions box is on the right side of your screen.

The empty box below the question is where you will type in your answer.

Pause while students read the question.

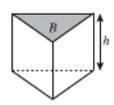
A triangular prism is shown.



Directions: Type your answer in the box.

What is the total surface area of this prism?

S.A. = cm²



$V = Bh$
 $S.A. = hp + 2B$

Back Reset Go to... Question 7 of 10 Review Next
PEM QC STUDENT

SAY Question 7 contains a formula box. Click on the Exhibit tool () on the toolbar to see the formula sheet. The formula in the box is not on this formula sheet. Any formulas that you may need to solve a problem, which are not on the formula sheet, will be provided in a formula box. Some items will be presented this way in the new mathematics tests.

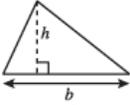
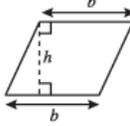
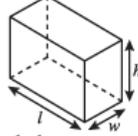
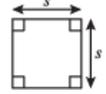
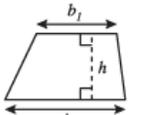
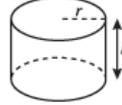
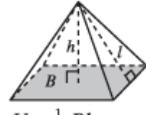
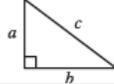
After clicking on the formula sheet icon on the toolbar, you will notice the formula sheet now covers the question.

Exhibit Window

Formula Sheet

Grade 8 Mathematics Formula Sheet

Geometric Formulas

| | | | |
|--|--|---|---|
|  $A = \frac{1}{2}bh$ |  $A = bh$ |  $V = lwh$ $S.A. = 2lw + 2lh + 2wh$ |  $V = \frac{1}{3}\pi r^2h$ $S.A. = \pi rl + \pi r^2$ |
|  $p = 4s$ $A = s^2$ |  $A = \frac{1}{2}h(b_1 + b_2)$ |  $V = \pi r^2h$ $S.A. = 2\pi rh + 2\pi r^2$ |  $V = \frac{1}{3}Bh$ $S.A. = \frac{1}{2}lp + B$ |
|  |  |  | |

Back Reset Go to... Question 7 of 10 Review Next
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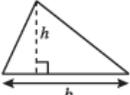
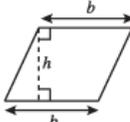
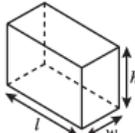
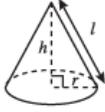
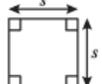
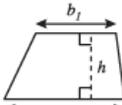
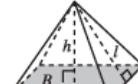
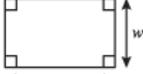
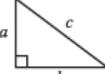
SAY The formula sheet can be re-sized and moved on your screen so you can view both the question and the formula sheet. To do this, place your cursor near the lower right corner of the Exhibit window until your cursor changes to a double ended arrow.

Exhibit Window

Formula Sheet

Grade 8 Mathematics Formula Sheet

Geometric Formulas

| | | | |
|--|--|---|---|
|  $A = \frac{1}{2}bh$ |  $A = bh$ |  $V = lwh$ $S.A. = 2lw + 2lh + 2wh$ |  $V = \frac{1}{3}\pi r^2h$ $S.A. = \pi rl + \pi r^2$ |
|  $p = 4s$ $A = s^2$ |  $A = \frac{1}{2}h(b_1 + b_2)$ |  $V = \pi r^2h$ $S.A. = 2\pi rh + 2\pi r^2$ |  $V = \frac{1}{3}Bh$ $S.A. = \frac{1}{2}lp + B$ |
|  |  |  | |

Back Reset Go to... Question 7 of 10 Review Next

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SAY Drag your cursor towards the center of the exhibit window until the formula sheet is the desired size.

Exhibit Window

Formula Sheet

Geometric Formulas

$A = \frac{1}{2}bh$
 $A = bh$
 $V = lwh$
 $S.A. = 2lw + 2lh$
 $p = 4s$
 $A = s^2$
 $V = Bh$
 $S.A. = hp + 2B$

Directions: Type your answer in the box.

$V = Bh$
 $S.A. = hp + 2B$

Question 7 of 10
PEM QC STUDENT

Back Reset Go to... Review Next

SAY Now you can move the formula sheet by placing your cursor on the gray Exhibit window task bar. Your cursor will change to a hand. Drag the formula sheet to the desired location on the screen. Notice the two scrollbars on the right and the bottom of the formula sheet that can be used to scroll the formula sheet up and down or to the left and right.

Pause while students practice using this tool.

A triangular prism is shown.

Directions: Type your answer in the box.

What is the total surface area of this prism?

S.A. = cm²

$V = Bh$
 $S.A. = hp + 2B$

Exhibit Window

Formula Sheet

Geometric Formulas

$A = \frac{1}{2}bh$

$A = bh$

$V = lwh$
 $S.A. = 2lw$

Question 7 of 10
PEM QC STUDENT

Back Reset Go to... Review Next

SAY Since you do not need the formula sheet, but will instead use the formula box, click the X in the upper right corner of the Exhibit window to put the tool away.

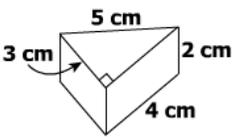
Wait for students to put the tool away.

SAY This particular formula box gives you two formulas. You will need to choose which formula is the correct one to use in order to solve this problem. Sometimes you will not need all of the formulas provided within the box, and will have to choose which formula is useful in order to solve a problem.

Use your scratch paper, calculator, and the formula box to find the answer to this question. Then place your cursor inside the box and type your answer. The label of cm² is outside the gray box, so only enter a numeric answer.

Pause while students work to find the answer to the question.

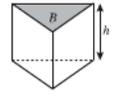
A triangular prism is shown.



Directions: Type your answer in the box.

What is the total surface area of this prism?

S.A. = cm²



$V = Bh$
 $S.A. = hp + 2B$

Back Reset Go to... Question 7 of 10 Review Next
PEM QC STUDENT

SAY What is the correct answer to this question?

Pause for replies.

SAY The correct answer is 36 cm², so you should have entered 36 into the box. Do you have any questions about how to type your answer in the box or how to use the formula sheet?

Answer all questions.

A triangular prism is shown.

5 cm
3 cm
2 cm
4 cm

What is the total surface area of this prism?

S.A. = cm²

Directions: Type your answer in the box.

$V = Bh$
 $S.A. = hp + 2B$

Back Reset Go to... Question 7 of 10 Review Next
PEM QC STUDENT

SAY Click *Next* at the bottom of the screen to continue to the next question.

Wait for students to click *Next*. Check to see that the students are looking at the correct question.

SAY Read question 8 to yourself. Notice that this is not a traditional multiple-choice item, but one that will require you to select one or more answers.

Pause while students read the question.

SAY Let's look at the directions together. The directions say, "Click on a box to choose the number you want to select."

These directions tell you that there is one answer choice that is correct for this item.

Sometimes, for these types of items, the directions will specifically tell you how many answer choices to select. Other times, the directions will say, "You must select all correct answers." This means there may be one correct answer or multiple correct answers to the item.

For all of these types of items, you must choose all correct answers, and only those answers, in order for the item to be considered correct.

Two triangular prisms shown have bases with the same area.

Directions: Click on a box to choose the number you want to select.

Prism M: 2 in.

Prism N: 8 in.

The volume of Prism N can be found by multiplying the volume of Prism M by what scale factor?

| | | |
|---------------|---|---|
| $\frac{1}{4}$ | 3 | 6 |
| $\frac{1}{6}$ | 4 | 8 |

Back Reset Go to... Question 8 of 10 Review Next

PEM QC STUDENT

SAY Decide which answer choice is correct. To select a number that you want to be considered as correct, place the cursor over the white box and then click once. An orange outline will appear around the number you select.

If you change your mind about the number you selected, you may click the *Reset* button on the bottom of the screen to unselect your answer and start over, or click on the eraser tool at the top of the screen to unselect your answer.

Which answer did you choose?

Pause for replies.

SAY The correct answer choice is 4. Do you have any questions?

Answer all questions.

Two triangular prisms shown have bases with the same area.

Directions: Click on a box to choose the number you want to select.

Prism M: 2 in.

Prism N: 8 in.

The volume of Prism N can be found by multiplying the volume of Prism M by what scale factor?

| | | |
|---------------|---|---|
| $\frac{1}{4}$ | 3 | 6 |
| $\frac{1}{6}$ | 4 | 8 |

Back Reset Go to... Question 8 of 10 Review Next
PEM QC STUDENT

SAY Click *Next* at the bottom of the screen to continue to the next item.

Wait for students to click *Next*. Check to see that the students are looking at the correct item.

SAY Read question 9 to yourself, including the directions. Notice that this item is not a multiple-choice question, but one that will require you to type in your answer.

Pause while students read the question.

A deck contains these cards of the same size and shape.

- 5 green cards
- 4 red cards
- 2 orange cards
- 1 blue card

Len will randomly select one card from the deck, not replace it, and then randomly select a second card. What is the probability he will select a blue card and then a red card? Type your answer as a fraction in simplest form.

Directions: Type your answer in the box. Your answer must be a fraction in simplest form. Use "/" for the fraction bar.

Back Reset Go to... Question 9 of 10 Review Next
PEM QC STUDENT

SAY The directions say, “Type your answer in the box. Your answer must be a fraction in simplest form. Use “/” for the fraction bar.

These directions specifically tell you that your answer must be a fraction in simplest form. It is important to enter your answer according to the directions so that your answer is scored correctly.

Use your scratch paper and calculator to find the answer to this question. Then place your cursor inside the box and type your answer.

Pause while students work to find the answer to the question.

SAY What is the correct answer to this question?

Pause for replies.

SAY The correct value is $\frac{1}{33}$. Notice that the box will only accept numbers and a fraction bar, which is the forward slash symbol (/). You should have entered 1, forward slash, 33 to represent the fraction $\frac{1}{33}$.

A deck contains these cards of the same size and shape.

- 5 green cards
- 4 red cards
- 2 orange cards
- 1 blue card

Len will randomly select one card from the deck, not replace it, and then randomly select a second card. What is the probability he will select a blue card and then a red card? Type your answer as a fraction in simplest form.

1/33

Directions: Type your answer in the box. Your answer must be a fraction in simplest form. Use "/" for the fraction bar.

Back Reset Go to... Question 9 of 10 Review Next PEM QC STUDENT

SAY Do you have any questions about how to type your answer in the box?

Answer all questions.

SAY Click *Next* at the bottom of the screen to continue to the next question.

Wait for students to click *Next*. Check to see that the students are looking at the correct question.

SAY Read question 10 to yourself, including the directions. Notice that this item is not a multiple-choice question, but will require you to click and drag your answer choices to the empty boxes.

Pause while students read the question.

Three rectangular prisms have the same base area but different heights. As the heights of these prisms increases, the volume increases. Identify the dependent and independent variables in this situation.

Directions: Click and drag each phrase to the correct box.

The dependent variable is the .

The independent variable is the .

height of the prism
 volume of the prism
 length of the base
 width of the base
 area of the bases

Back Reset Go to... Question 10 of 10 Review Next
 PEM QC STUDENT

SAY The phrases that can be used to identify the dependent variable and independent variable are inside the dark gray box. Placing the correct phrase into each box will be your answer. You will need to click and drag one phrase into each box.

If you do not click and drag phrases into the boxes, the question will not be answered. If you only drag one phrase into a box, the question will be considered answered on the review screen, even though you did not completely answer the question, and it will be considered incorrect.

If you change your mind about a phrase, you can click the *Reset* button on the bottom of the screen, or drag the phrase back to the dark gray box and select another phrase to drag into the empty box.

Determine which phrases you want to select as your answers. Then click and drag the phrases into the appropriate boxes inside of the answer box.

Pause while students determine the answer the problem and practice clicking and dragging answers into the boxes.

SAY Which answers did you choose?

Pause for replies.

SAY The correct answer to identify the dependent variable is “volume of the prism” and the correct answer to identify the independent variable is “height of the prism.” Do you have any questions about how to click and drag your answers into the boxes?

Answer all questions.

Three rectangular prisms have the same base area but different heights. As the heights of these prisms increases, the volume increases. Identify the dependent and independent variables in this situation.

Directions: Click and drag each phrase to the correct box.

The dependent variable is the .

The independent variable is the .

height of the prism
 volume of the prism
 length of the base
 width of the base
 area of the bases

Back Reset Go to... Question 10 of 10 PEM QC STUDENT Review Next

SAY Practice changing your answer to a different answer by using the *Reset* button to place the answer choices back into the dark gray boxes at the same time, or drag them back to the dark gray boxes individually. After you have practiced, put the correct phrases back into the empty boxes.

Pause while the students practice changing their answers.

SAY Click *Next* at the bottom of the screen to continue to the *Review* screen.

Wait for students to click *Next* and check to be sure all students are looking at the *Review* screen.

SAY The *Review* screen shows which questions have not been answered and which questions have been checked for review. To return to a question, click on the question number.

Once the practice items are reviewed and completed, click the *Submit* button. Then click “Yes, submit my test.” Then you will see the question, “Do you wish to end the test and submit your answers?” Click “Yes.” This will exit the practice items.

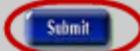
You may now practice navigating between the *Review* screen and the practice items. Then exit the practice items to end this practice session.

Wait for students to practice navigating from the *Review* screen to practice items, and then for them to submit their test.

Note that each student’s review screen may vary, depending upon whether a question was left unanswered or marked for review.

To go to a specific question, click on the question name. Section 

| Question Name | Answered? | Review? |
|-----------------------------|---------------------|------------------------|
| Question 1 | | |
| Question 2 | | |
| Question 3 | | Review |
| Question 4 | | |
| Question 5 | | |
| Question 6 | | |
| Question 7 | | |
| Question 8 | Not Answered | Review |
| Question 9 | | |
| Question 10 | | |

[Save and Exit](#)
To end the test and submit your answers for final scoring, click on the Submit button.


TestNav

Submit Test for Scoring

Section 1: 0 unanswered questions.

 You are about to submit your test and send all of your answers for scoring. You will not be able to return to the test once it has been submitted.

Are you sure you want to submit your test?

TestNav

Su

Do you wish to end the test and submit your answers?

 all of your answers for scoring. You will not be able to return to the test once it has been submitted.

Are you sure you want to submit your test?

To start the practice items again, return to the “START THE ePAT LAUNCHER” section on page 9 for directions if needed.