Practice Item Guide

Virginia Standards of Learning

Grade 7 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 7 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 7 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.

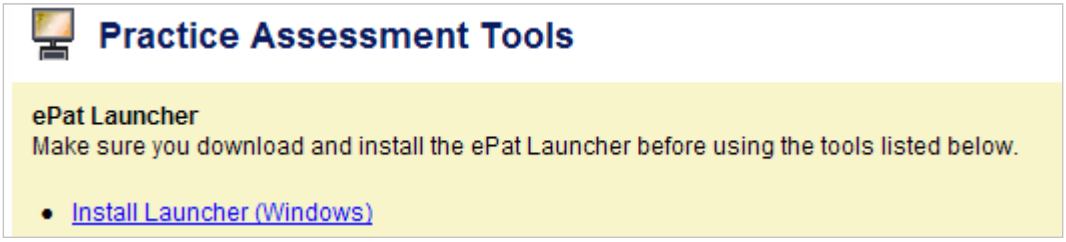
Some items require the student to graph point(s) on a line, grid, or image. The student's response is the location of the point(s) in relation to the line, grid, or image. These types of items may include graphing points on a number line, graphing ordered pairs on a grid, or graphing inequalities.

INSTALLING THE ePAT LAUNCHER

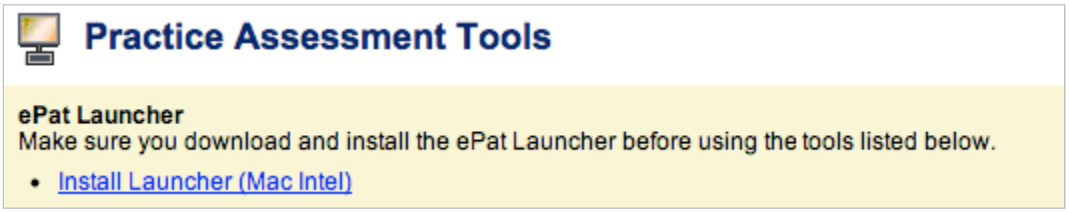
If the computer being used to take the SOL practice item set already has the ePAT Launcher installed, please proceed to page 8. For computers without the ePAT Launcher previously installed or if you are unsure whether the ePAT launcher has been installed, continue with the steps below. Work with your 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/vaPALPLayout&cid=1175826755281&pagename=vaPALPWrapper

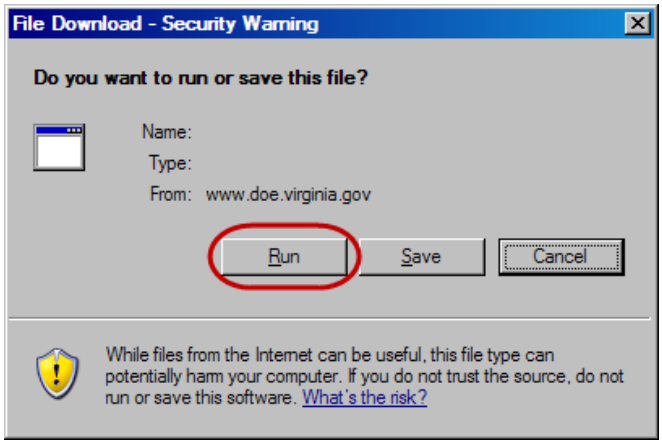
2. Under the "ePAT Launcher" heading, click the "Install Launcher (Windows)" or "Install Launcher (Mac Intel)" link depending on the type of computer workstation being used.



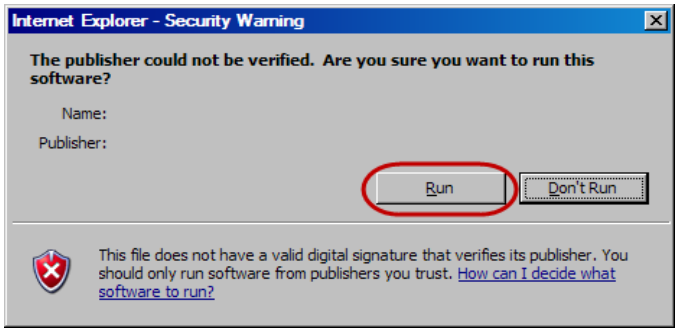
OR



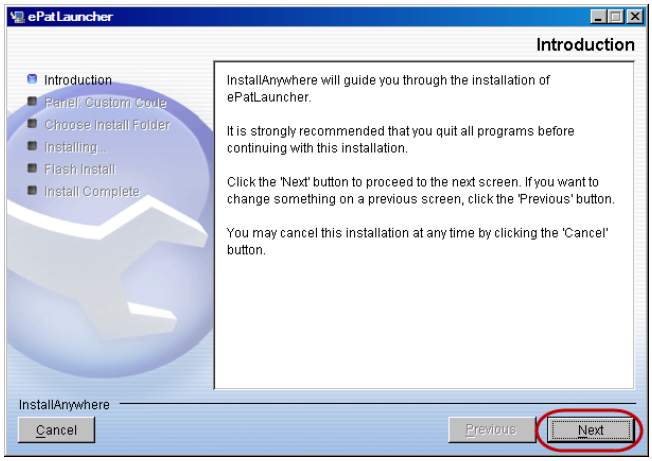
3. Click “Run” to continue. The file will start to download.



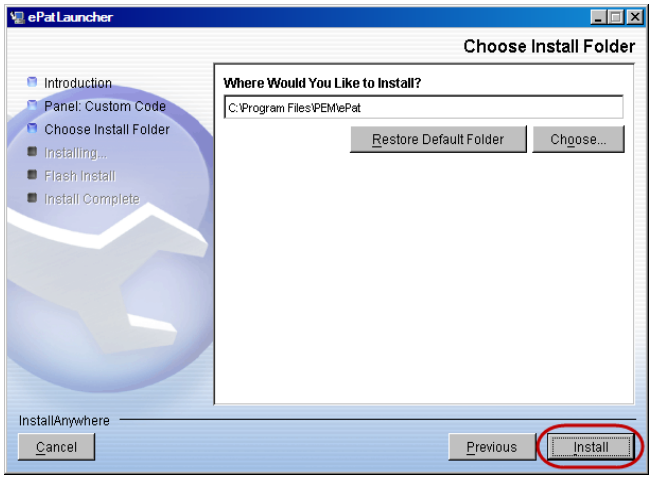
4. When the download is complete, click “Run” to continue.



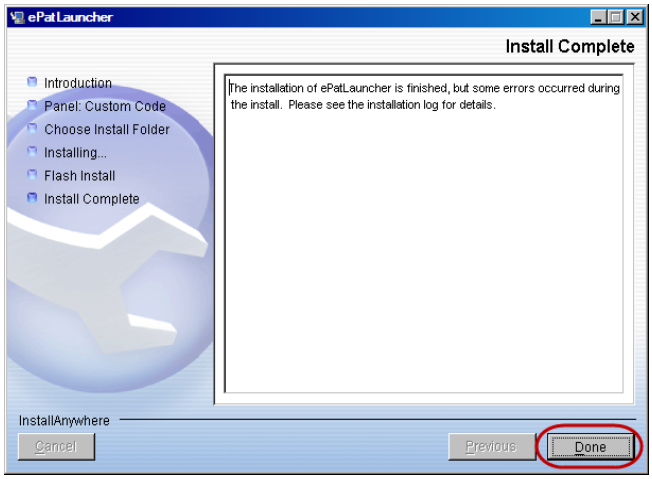
5. The ePAT Launcher installation will begin. Click “Next” to continue.



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."

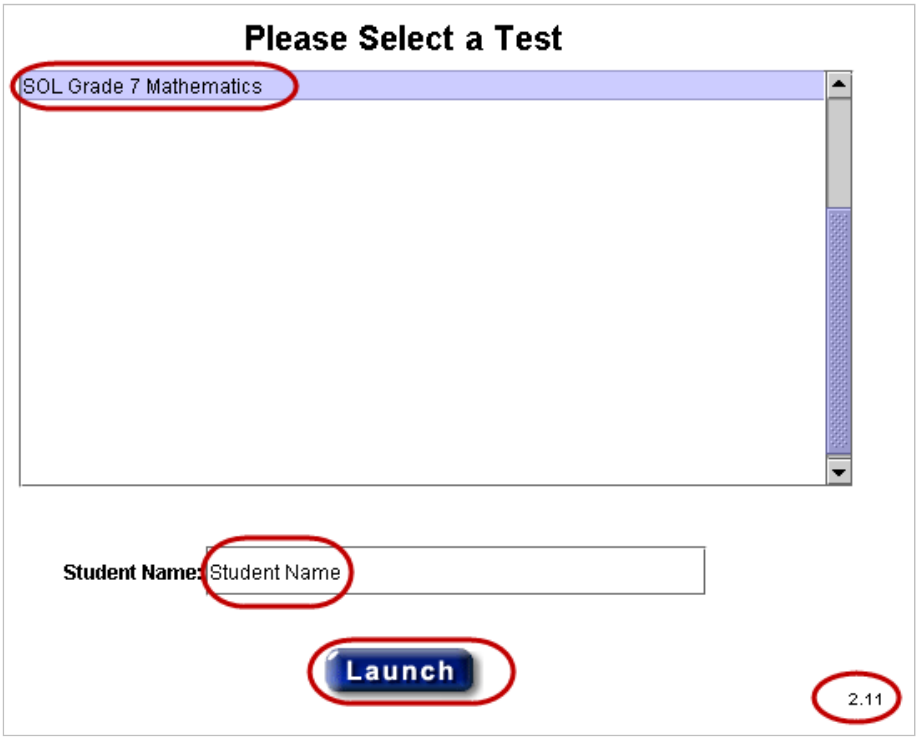
9. If you wish to download additional practice items, return to step 2 above.

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 7 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, 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 7 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 7 MATHEMATICS PRACTICE ITEMS

Introduction

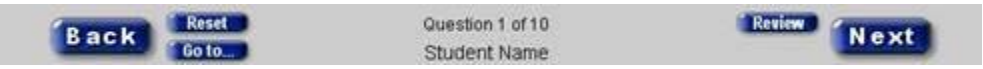
After the practice items are launched, the first practice item will be displayed. Read the following instructions to the students.

SAY **Today you will be working on some grade 7 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
Next	Goes to the next screen
Back	Goes back a screen
Reset	Clears your answer choice
Review	Marks the question so you can go back and look at it again
Go To	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.

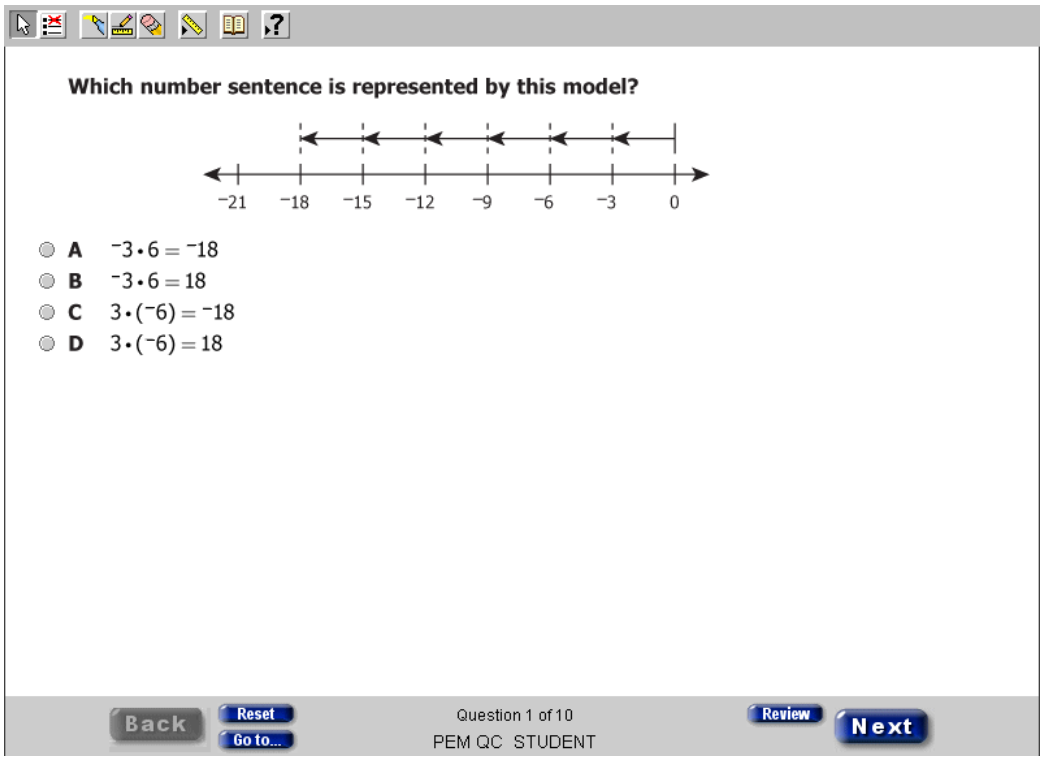
SAY **Some of the tools you can use are in the toolbar at the top of the screen. Information about each tool on the toolbar is available by clicking the question mark symbol ( ). Click on the question mark symbol now. To display help on a specific tool, click the tool name in the drop-down list. Take 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.

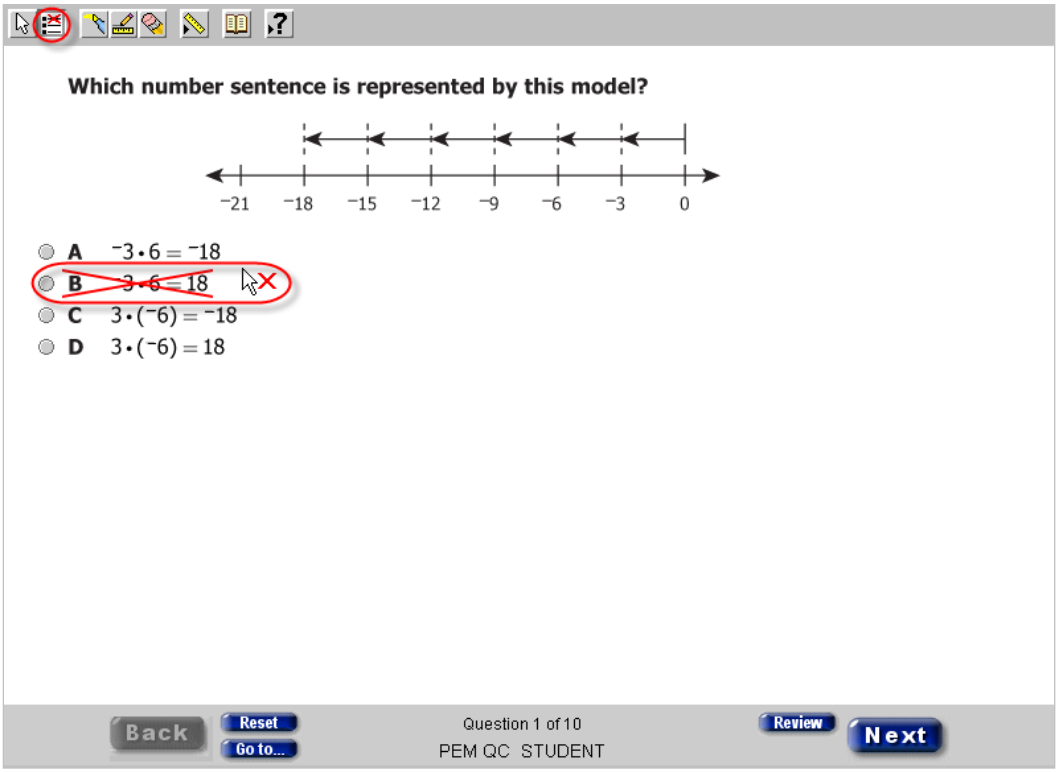


SAY **Decide which answer you think is correct.**

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

SAY **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.

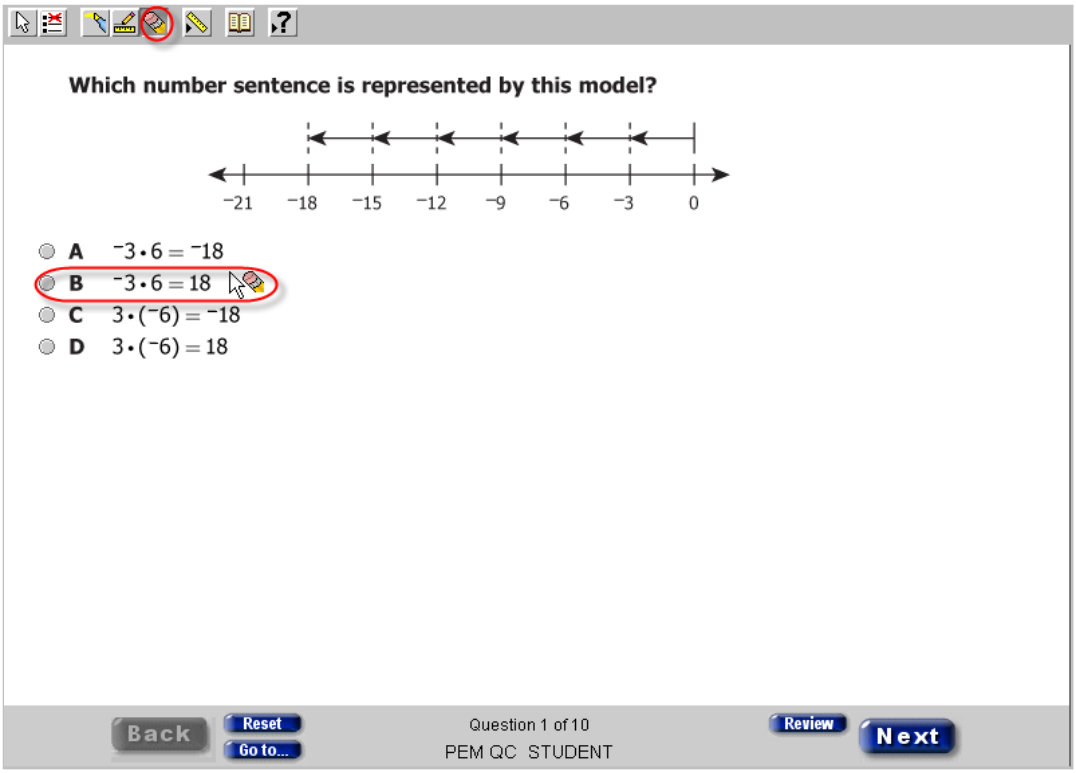


SAY **Click the eliminate choice tool icon again to put the tool away.**

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.



SAY **Click on the eraser tool icon to put it away. Now 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 A. Click on the circle next to choice A 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?

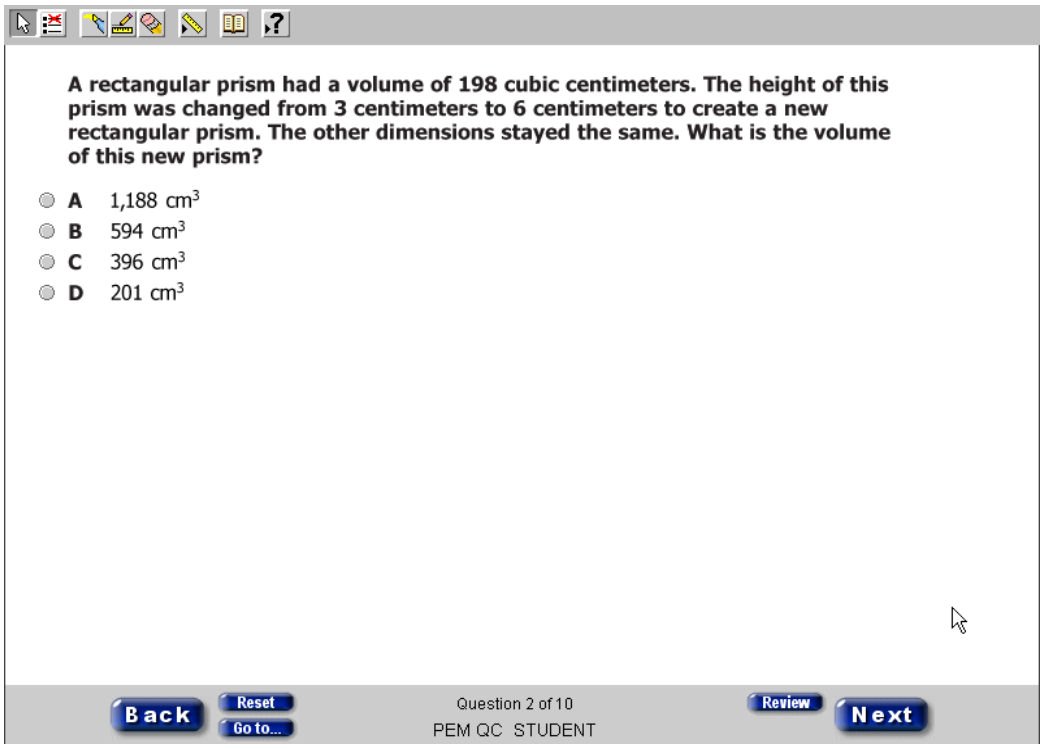
Answer questions about how to click to select an answer or use the tools. Since these are practice items, it is acceptable to give assistance or discuss how to find the correct answer to any question.

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

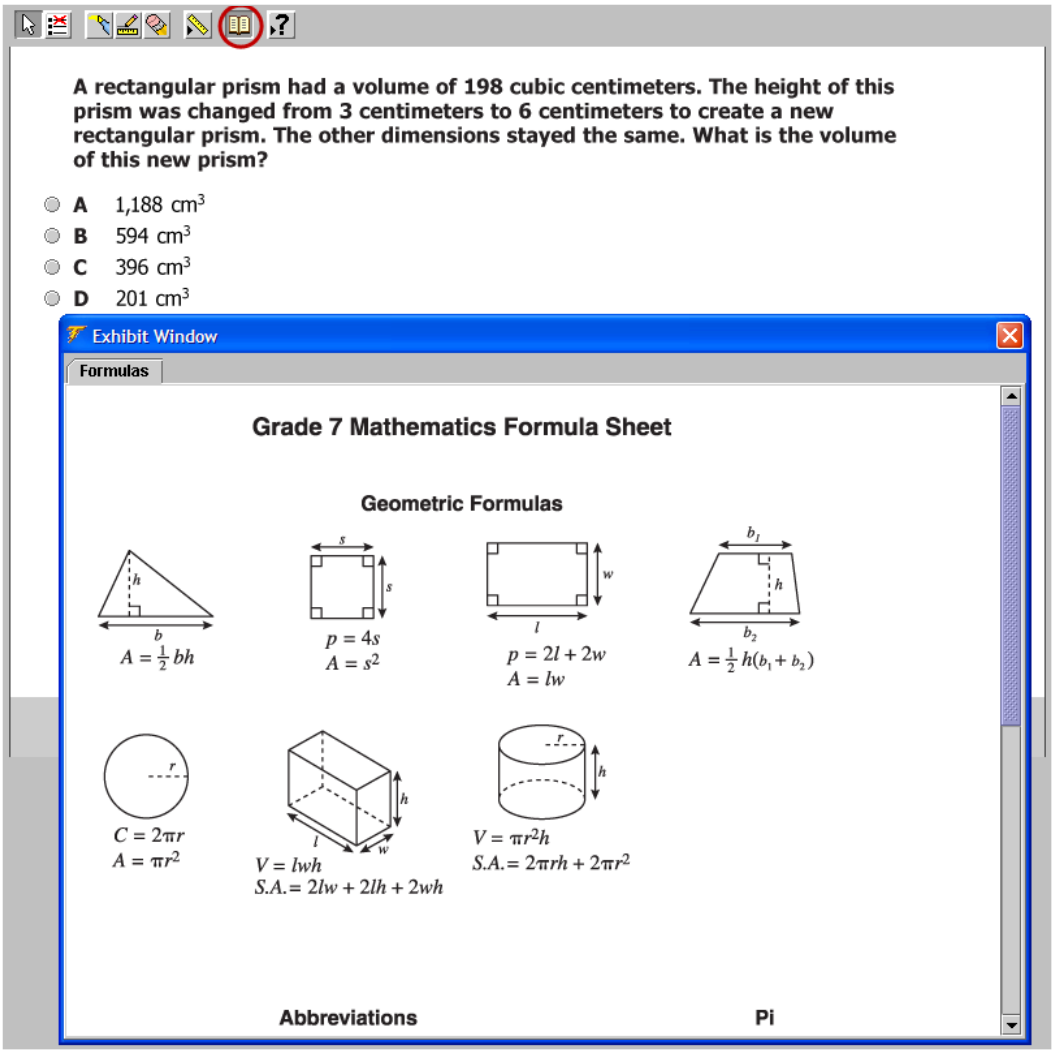
Wait for students to click *Next*. Check to see that the students are looking at the correct question.

SAY **Read question 2 to yourself.**

Pause while students read the question.



SAY **Notice that for question 2, the use of the grade 7 formula sheet may help you solve this problem. Click on the Exhibit tool ( ) on the tool bar to view the grade 7 formula sheet.**



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 Exhibit window to put the tool away.**

Wait for students to put the tool away.

SAY **Now click on the answer you have chosen. Which answer did you choose?**

Pause for replies.

SAY **The correct answer is C, 396 cm³. Do you have any questions about how to select an answer or how use the Exhibit tool?**

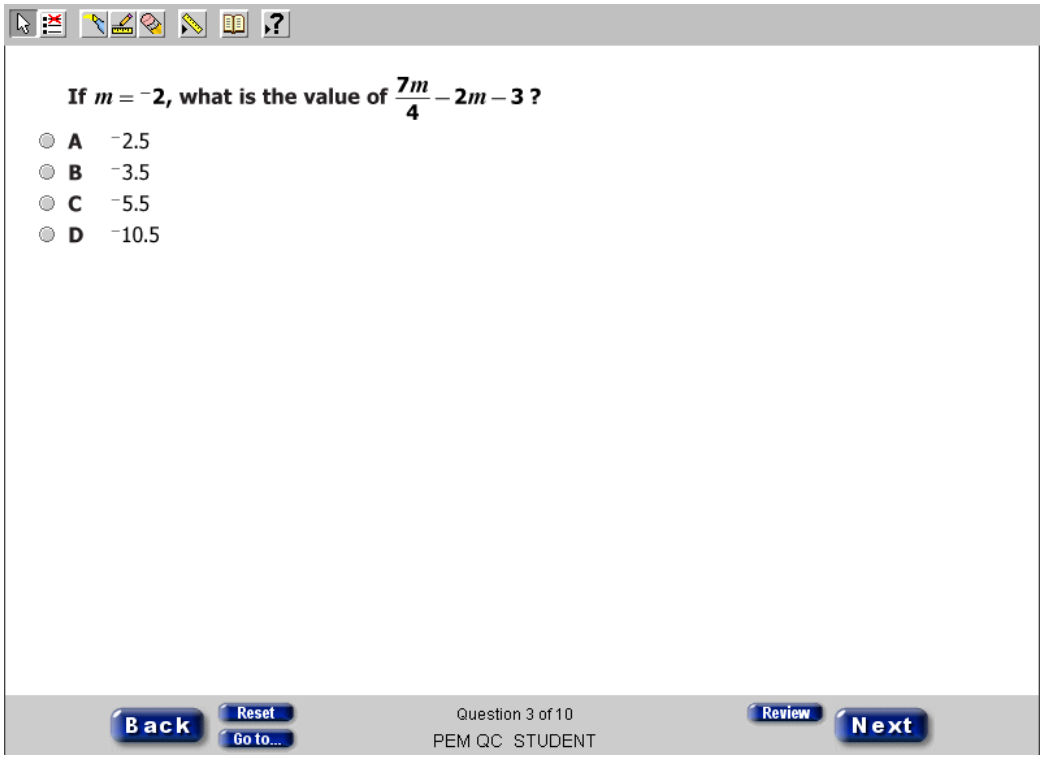
Answer all questions.

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 3 to yourself.**

Pause while students read the question.



SAY **Use your calculator and scratch paper to determine which answer is correct. Then 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 A, - 2.5. Do you have any questions?**

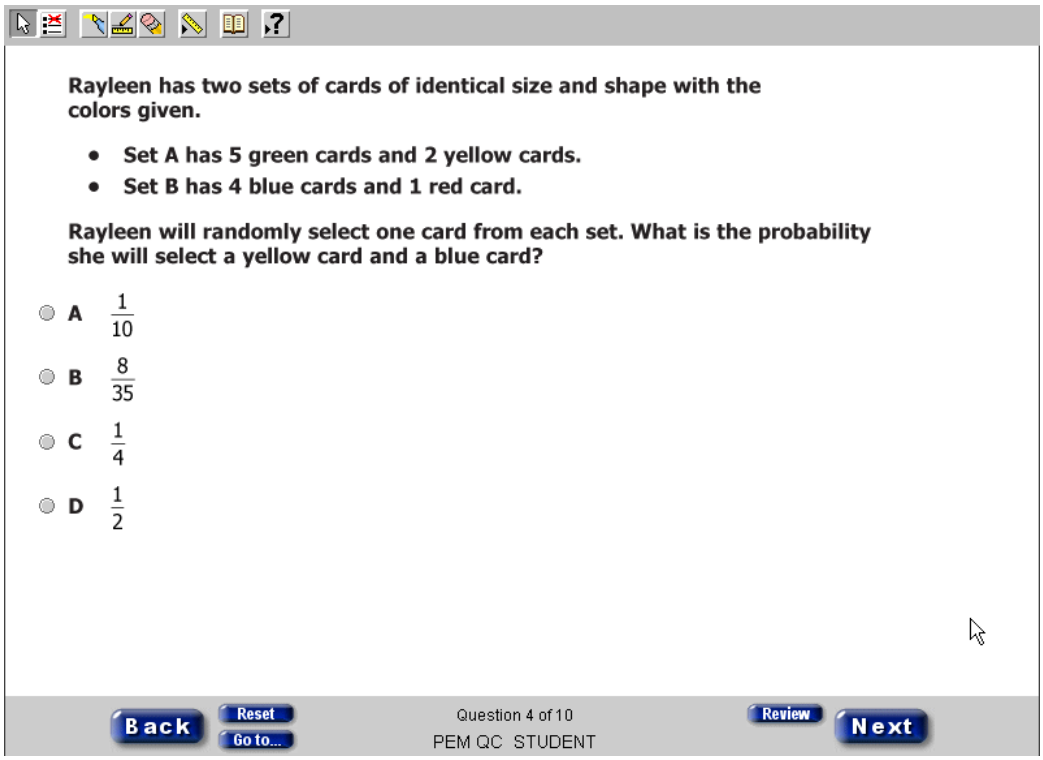
Answer all questions.

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.

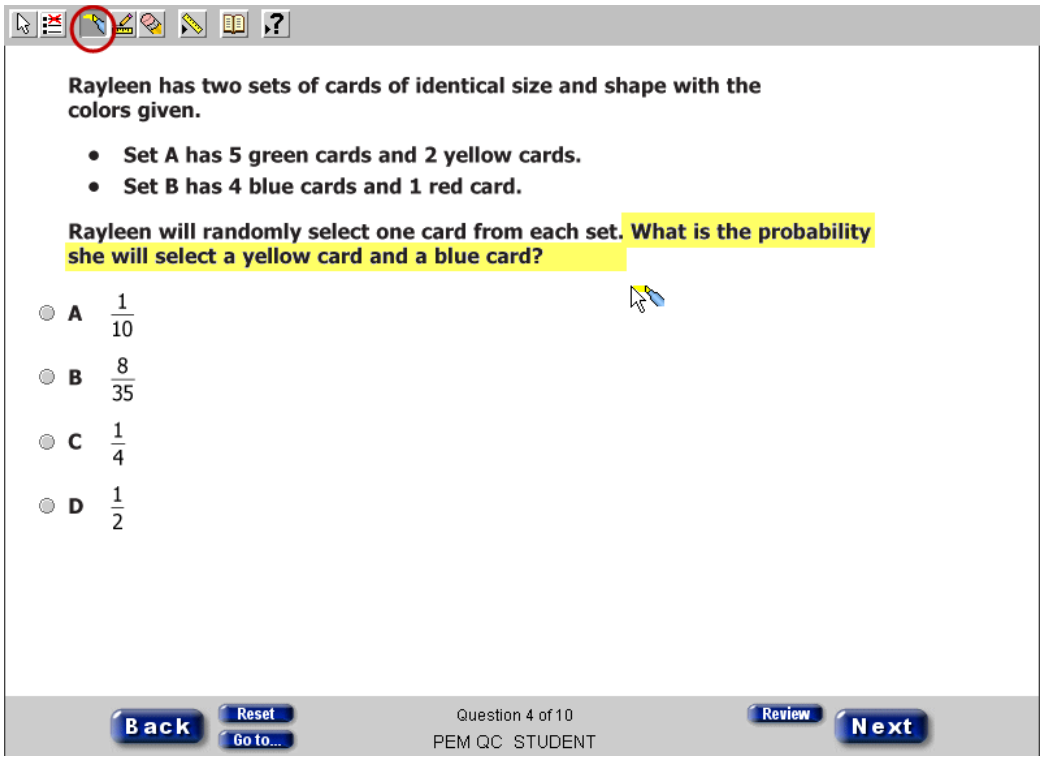
SAY **Read question 4 to yourself.**

Pause while students read the question.



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.**

Pause while students practice using the highlighter tool.



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 B, $\frac{8}{35}$. Do you have any questions about selecting the correct answer or using the highlighter tool?**

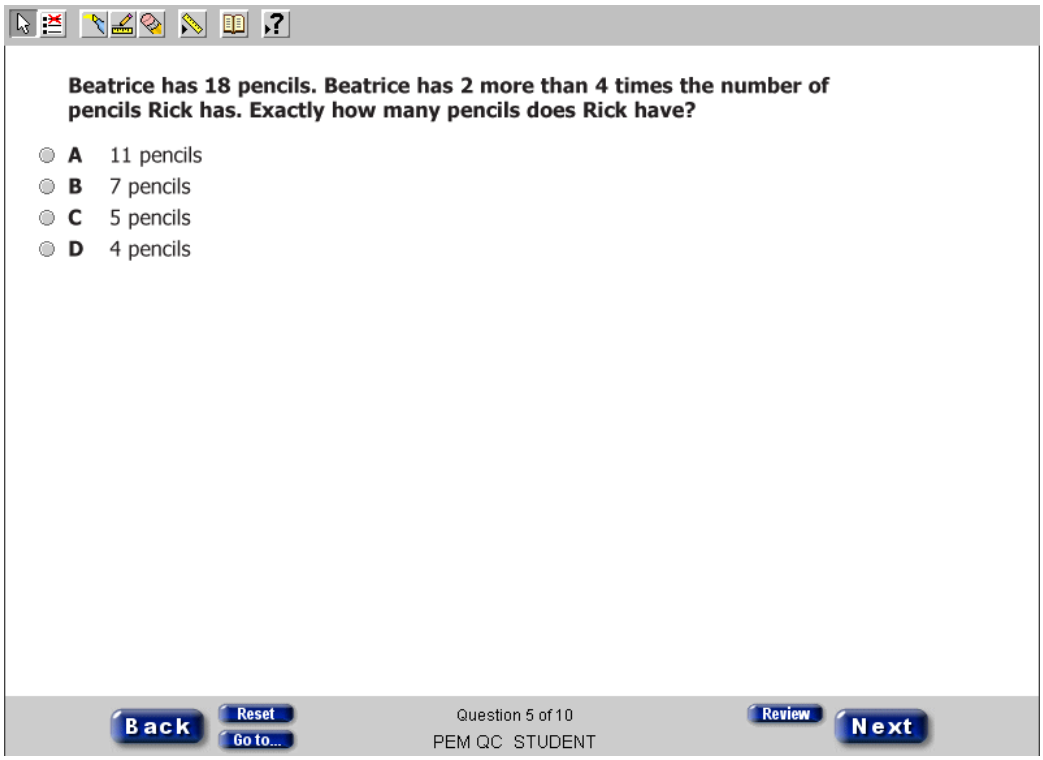
Answer all questions.

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.



SAY **Determine which is the correct answer. Now 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 D, 4 pencils. Do you have any questions?**

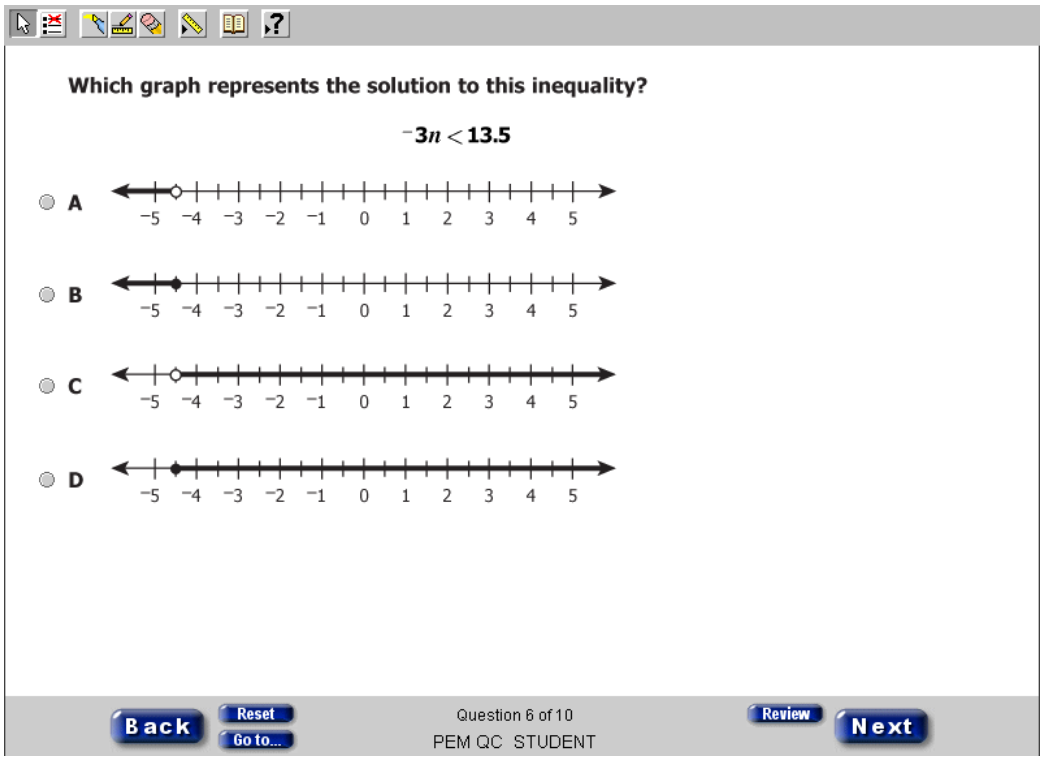
Answer all questions.

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 6 to yourself.**

Pause while students read the question.



SAY **Use your scratch paper and calculator to find the solution to the inequality. Then decide which graph represents your solution. 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.

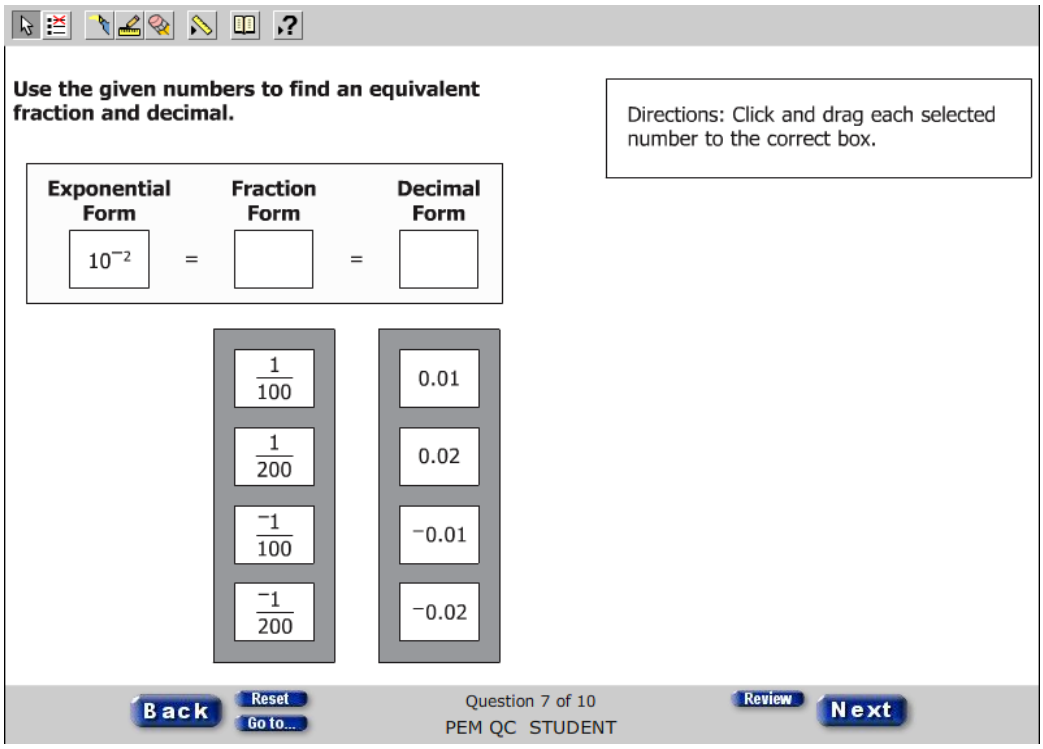
SAY **The correct answer is C. Do you have any questions?**

Answer all questions.

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

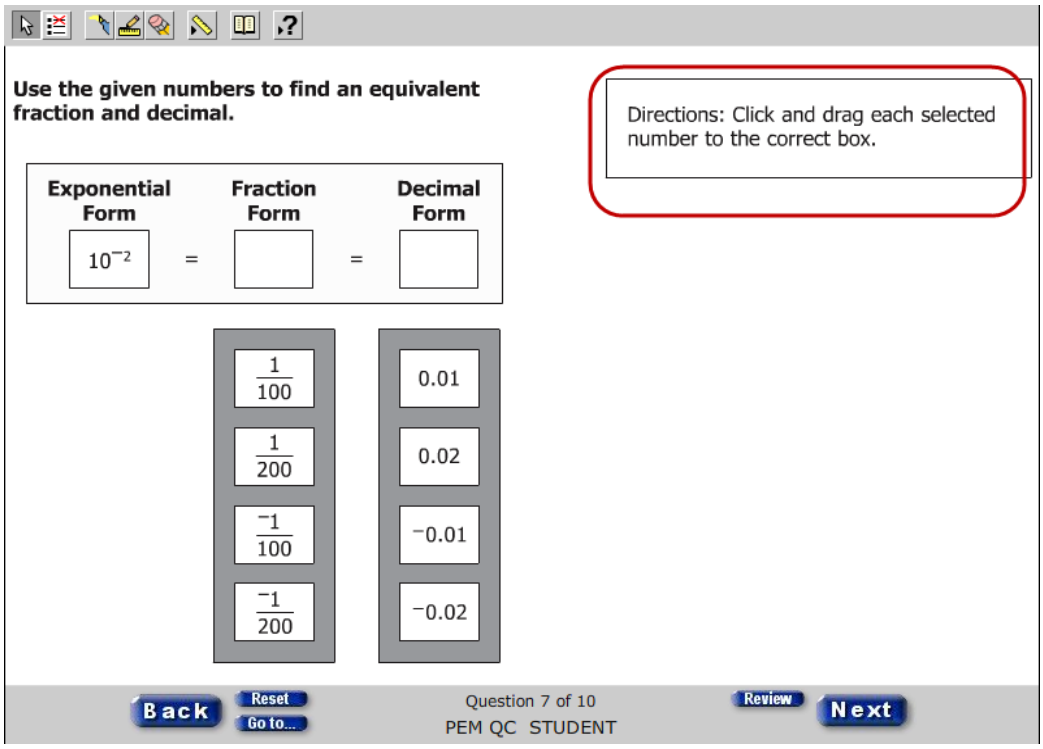
Wait for students to click *Next.* Check to see that the students are looking at the correct question.

SAY **Let's read question 7 together. The question is located on the left side of your screen. Question 7 says, "Use the given numbers to find an equivalent fraction and decimal." Notice that question 7 is not a multiple-choice item, but one that will require you to click and drag your answer choices to the empty boxes.**



SAY **A 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.**

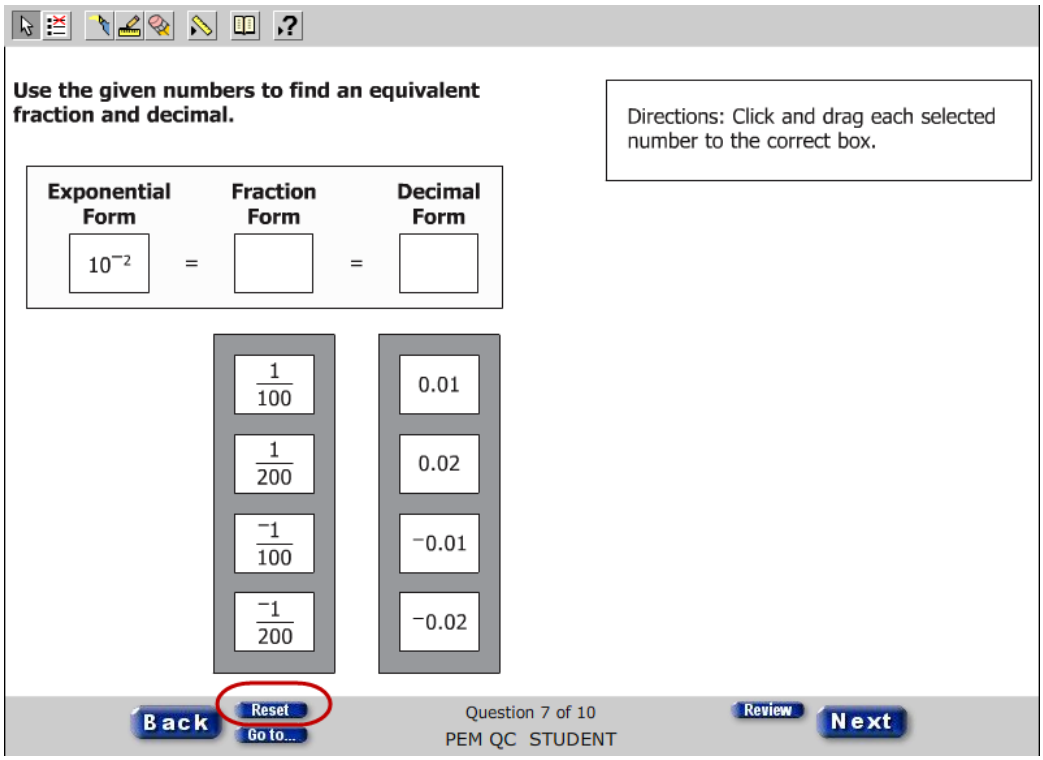
The directions for this item say, "Click and drag each selected number to the correct box."



SAY **The answer choices are located within the dark gray box underneath the question. In order to get this item correct, you must choose the correct fraction and decimal for each box. Notice that there are two boxes which require numbers to be placed in them. These numbers will be your answer to the question. You will need to click and drag one number into each box.**

If you do not click and drag numbers into the boxes, the question will not be answered. If you only drag one number into a box, the question <u>will</u> 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 number, you can click the *Reset* button on the bottom of the screen, or drag the number back to the dark gray box and select another number to drag into the empty box.

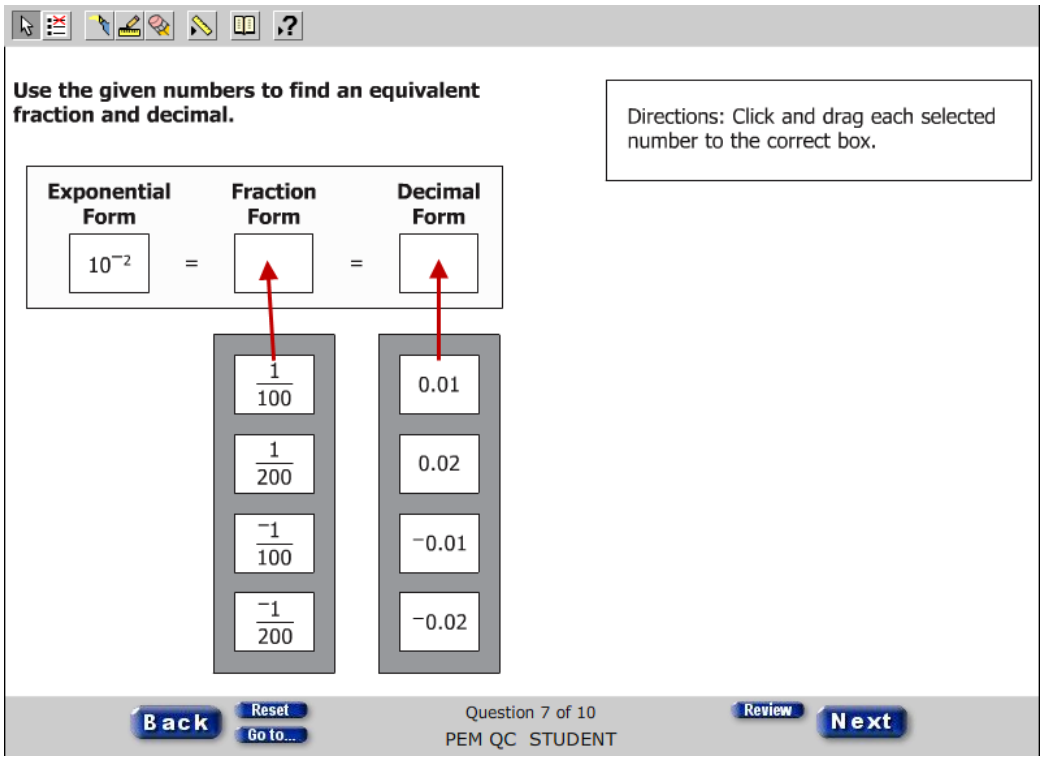


SAY **Decide which fraction is equivalent to the exponential form of the given number. Then click and drag the fraction into the box labeled "Fraction Form." Now decide which decimal is equivalent to the exponential form of the given number and click and drag it into the box labeled "Decimal Form."**

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

SAY **What are the correct fraction and decimal?**

Pause for replies.



SAY **The correct fraction is $\frac{1}{100}$ and the correct decimal is 0.01. Do you have any questions about how to click and drag your answers into the boxes?**

Answer all questions.

SAY **Practice changing your 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 fraction and decimal back into the empty boxes.**

Pause while the students practice changing their answers.

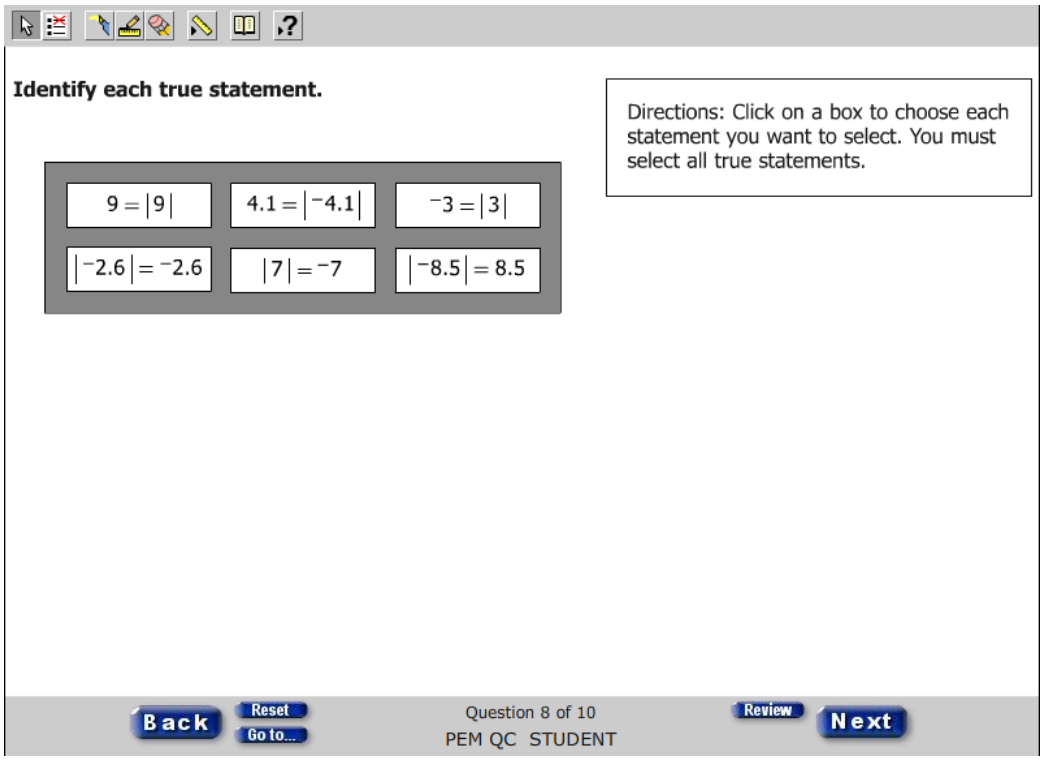
SAY **Click *Next* at the bottom of the screen to continue to the next question.**

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 each statement you want to select. You must select all true statements." There may be one correct answer or multiple correct answers to this item. In order to get the item correct, you must choose all correct answers, and only those answers.**



SAY **Decide which answer or answers are correct. Be sure to select each number that you want to be considered as correct. To select a number, place the cursor over the white box and then click once. An orange outline will appear around each statement you select.**

Pause while students select the correct answer or answers.

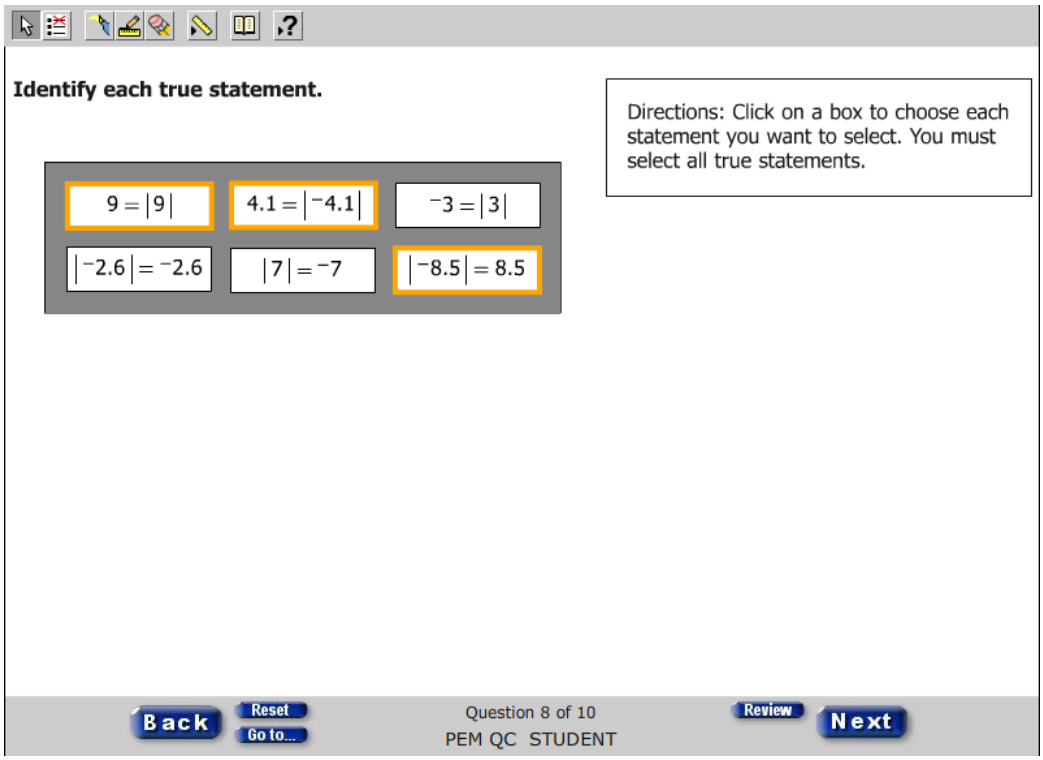
SAY **If you change your mind about the statements you selected, you may click the *Reset* button on the bottom of the screen to unselect all of your answers and start over, or click on the eraser tool at the top of the screen to unselect one answer at a time.**

Which answer or answers did you choose?

Pause for replies.

SAY **The correct answer choices are 9 = I9I, 4.1 = I-4.1I, and I-8.5I = 8.5. Do you have any questions?**

Answer questions about how to click to select an answer or use the tools.

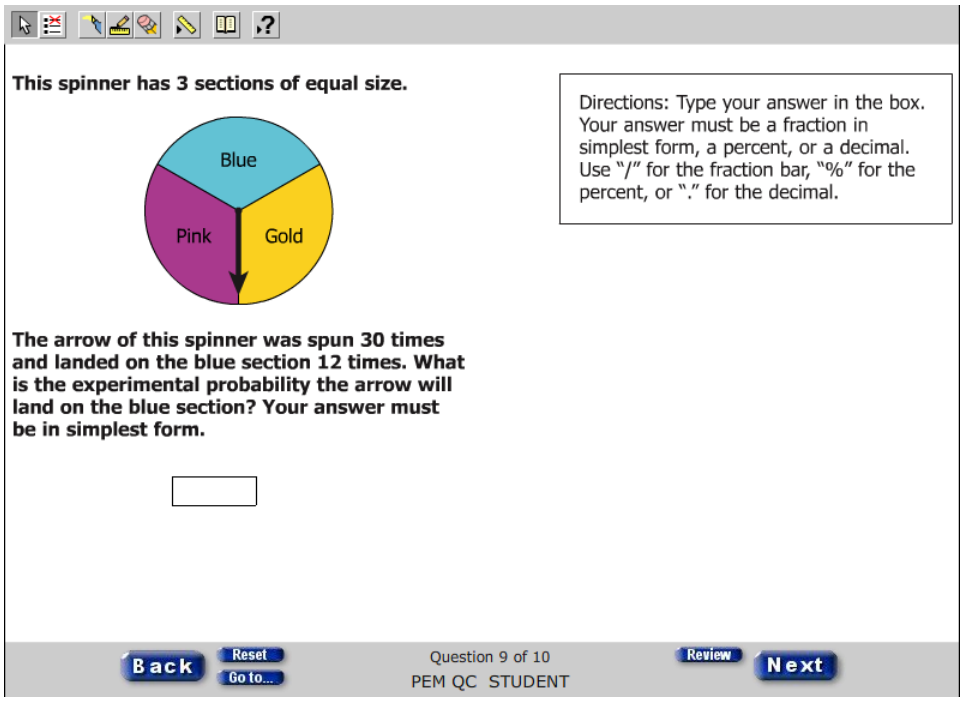


SAY **Click *Next* at the bottom of the screen to continue to the next item.**

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 will require you to type in your answer.**

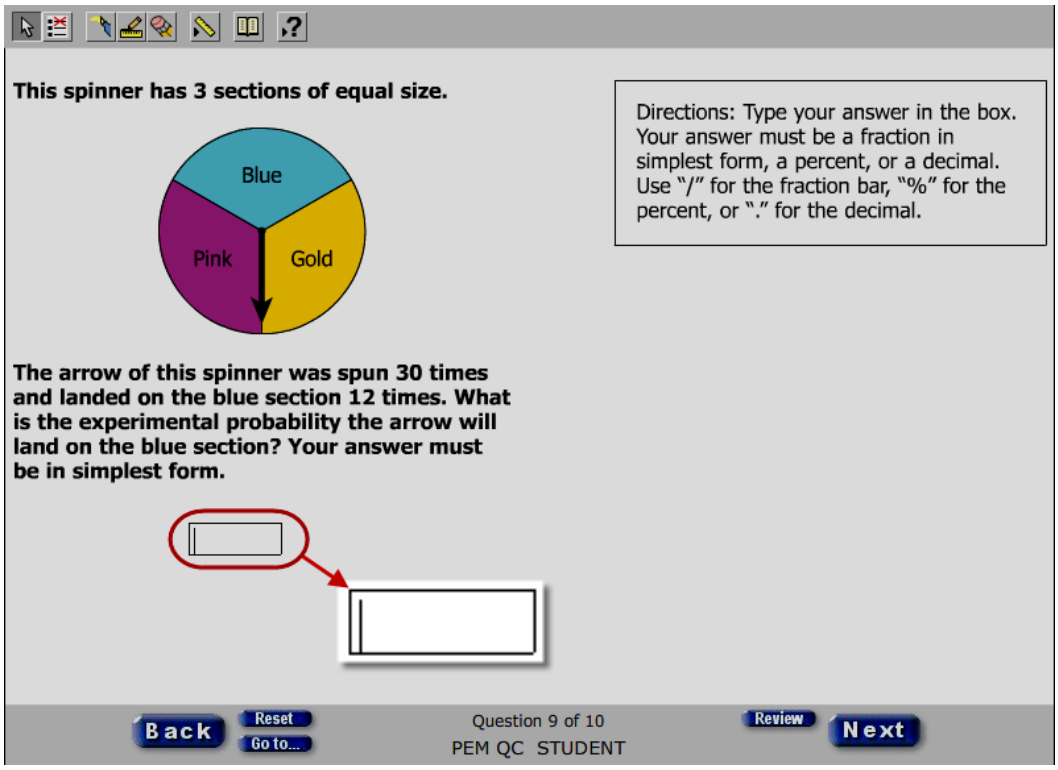
Pause while students read the question.



SAY **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.

According to the directions, this question will let you give your answer as a fraction, percent, or a decimal. Place your cursor inside the box and type your answer. You can use a fraction bar (/), a percent sign (%), or a decimal (.) as part of the answer you type in.

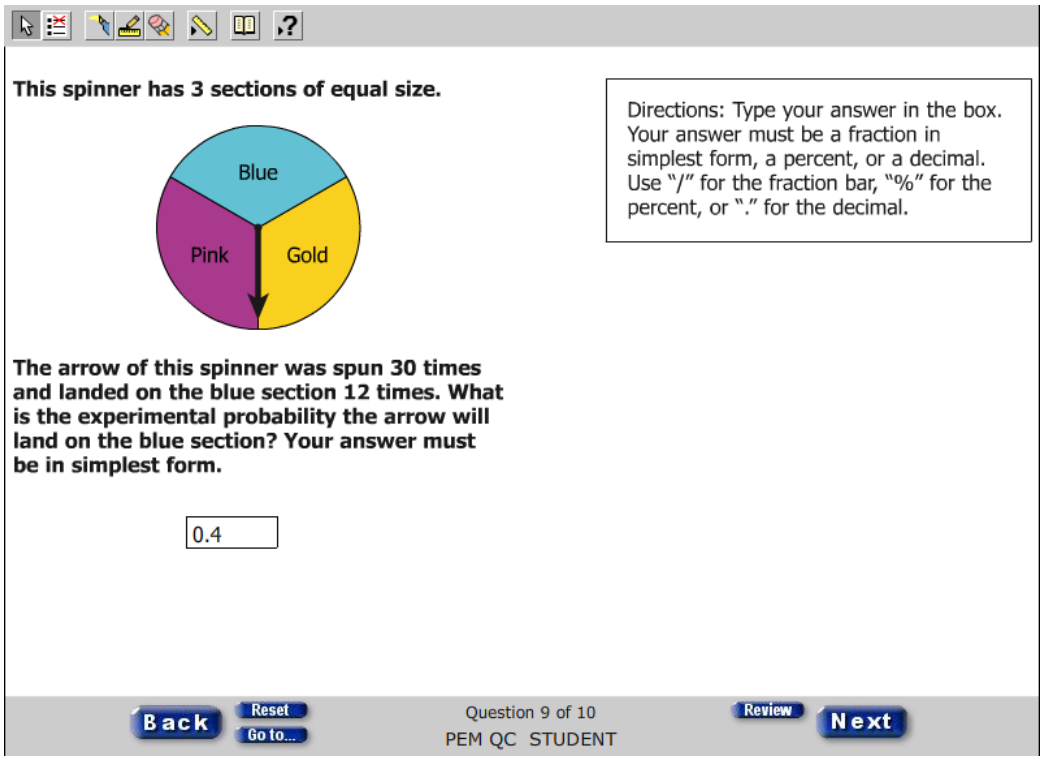


Pause while students solve the problem.

SAY **What is the correct answer to this question?**

Pause for replies. There is more than one correct response and all responses should be solicited. The correct responses are $\frac{2}{5}$, 40%, or 0.4. The decimal answers "0.40, .40, and .4" would also be considered correct answers.

SAY **It is possible to answer this question with a fraction in simplest form, a percent, or a decimal. You only need to enter one of these to get the item correct.**



SAY **The correct answers are $\frac{2}{5}$, 40%, or 0.4. Do you have any questions about how to type your answer in the box?**

Pause to answer all questions.

SAY **Try entering other characters into the box, such as letters or other symbols. Notice that the box will accept numbers, a decimal point, fraction bar, and percent sign. Some items may only accept numbers. 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. Also notice that the answer you entered does not need to be the same length as the box.**

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 re-enter $\frac{2}{5}$, 40%, or 0.4, which are the correct answers to this problem.**

Pause while students clear the answer box and retype $\frac{2}{5}$, 40%, or 0.4.

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

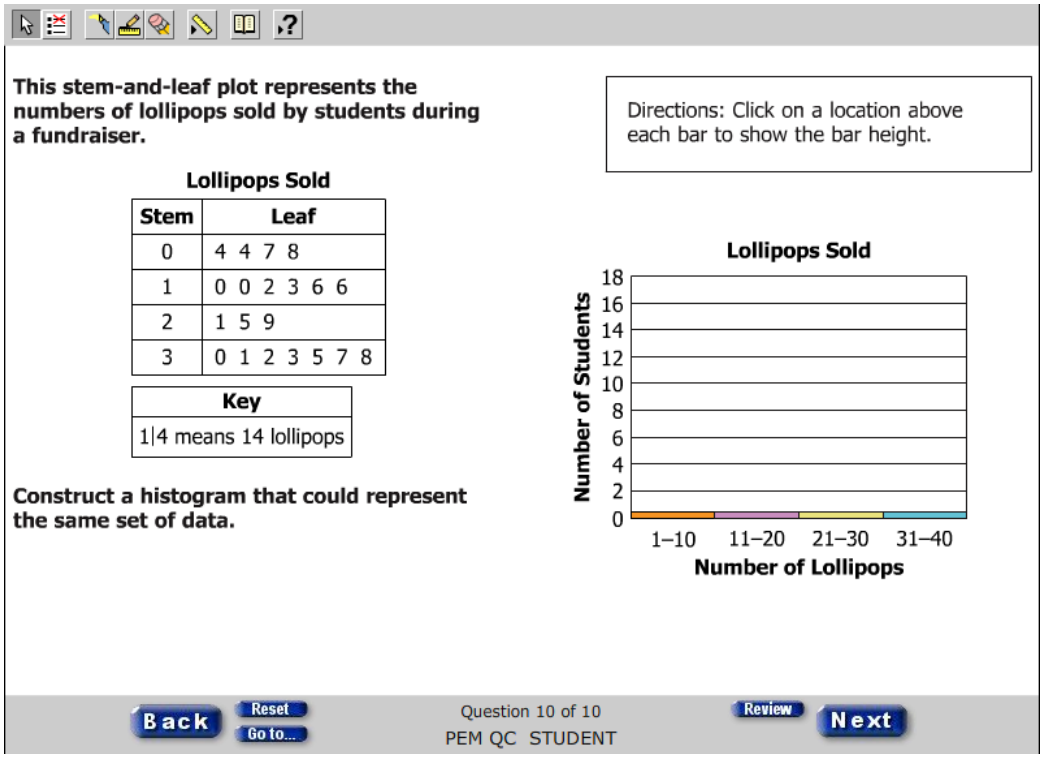
Answer any questions.

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 10 to yourself, including the directions. Notice this item is not a multiple-choice question, but requires you to create a histogram.**

Pause while students read the question and directions.



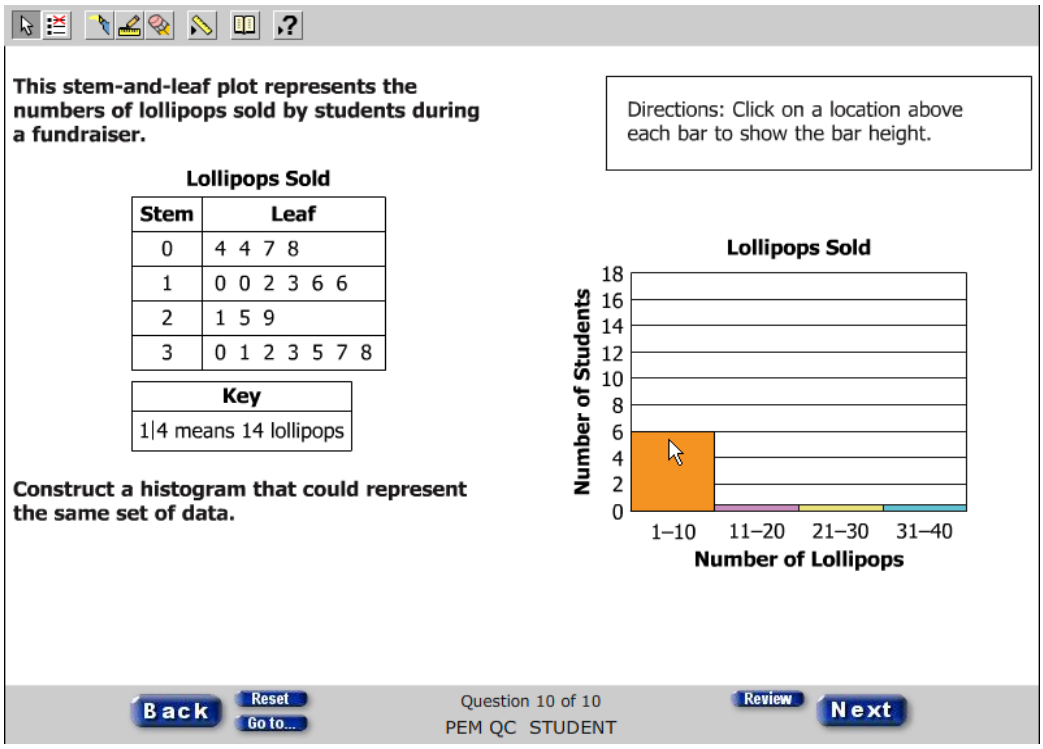
SAY **This item asks you to construct a histogram that represents the same set of data as the stem-and-leaf plot.**

According to the stem-and-leaf plot, how many students sold 0 – 10 lollipops?

Pause for students to reply.

SAY **The number of students who sold 0 – 10 lollipops is 6. Place your cursor over the bar for 1-10. Click on the gridline for 6 students above this bar.**

Pause for students to plot the height of the bar.



SAY **This histogram question allows you to click on the gridlines or halfway between the gridlines. Some histogram questions will allow you to click on only the gridlines.**

Now complete the histogram by clicking a gridline above each of the other bars.

If you clicked in the wrong location, or if you want to change a bar height, simply click above or below the interval at a new location to change the bar height. You can also use the *Reset* button to reset all of the bars to the original locations at the same time.

Pause while the students complete the histogram graph.

SAY **Do you have any questions on how to move the bars?**

Pause for questions.

SAY **Now finish the histogram.**

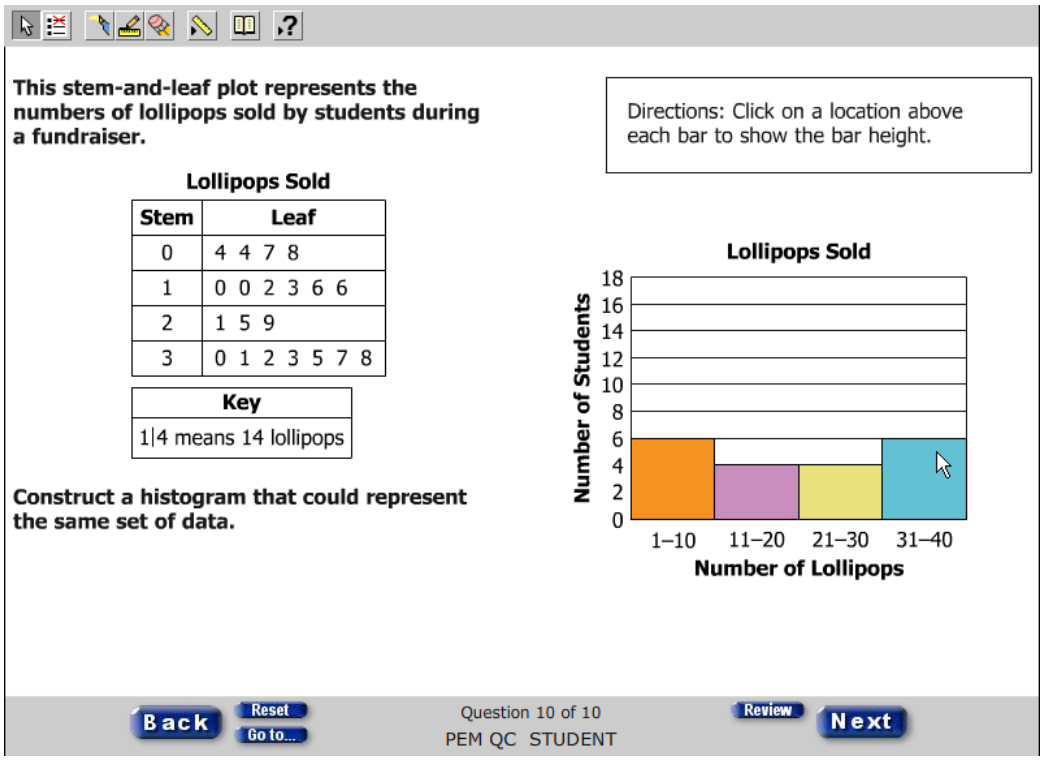
Pause will students finish the histogram**.**

SAY **What are the heights of the other bars in this histogram?**

Pause for student replies. The “11-20” bar height should be 4, the “21-30” bar height should be 4, and the “31-40” bar height should be 6.

SAY **The height of the “11-20” bar should be 4. The height of the “21-30” bar should be 4, and the height of the “31-40” bar should be 6. Do you have any questions?**

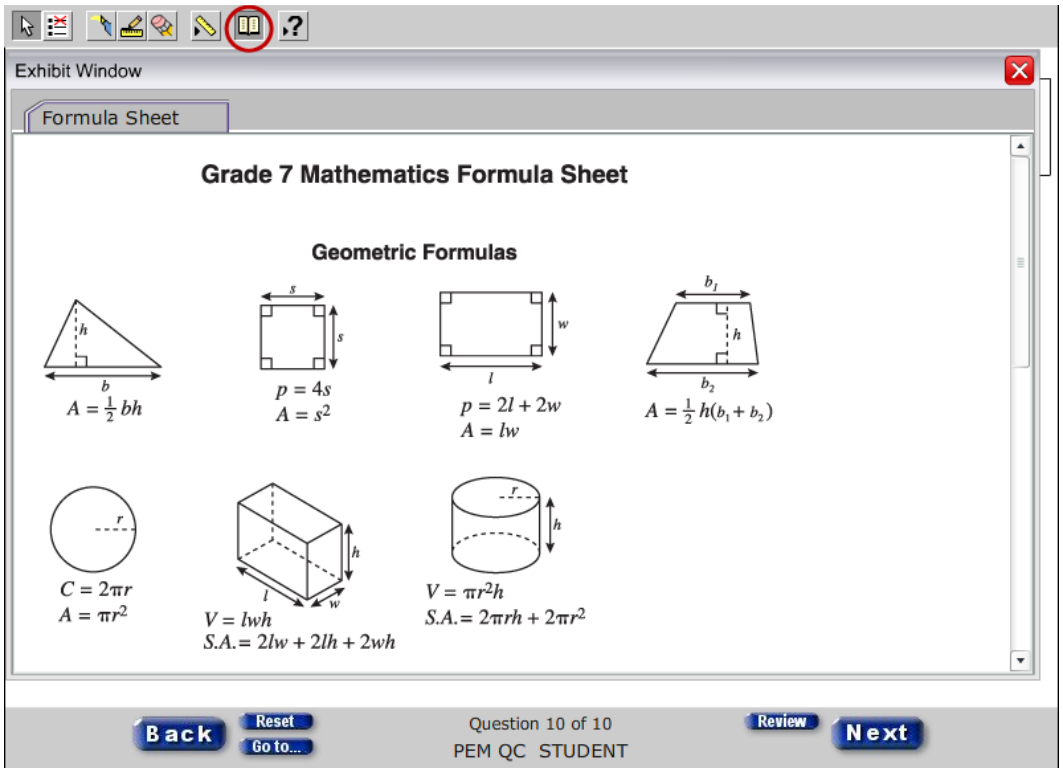
Pause to answer all questions.



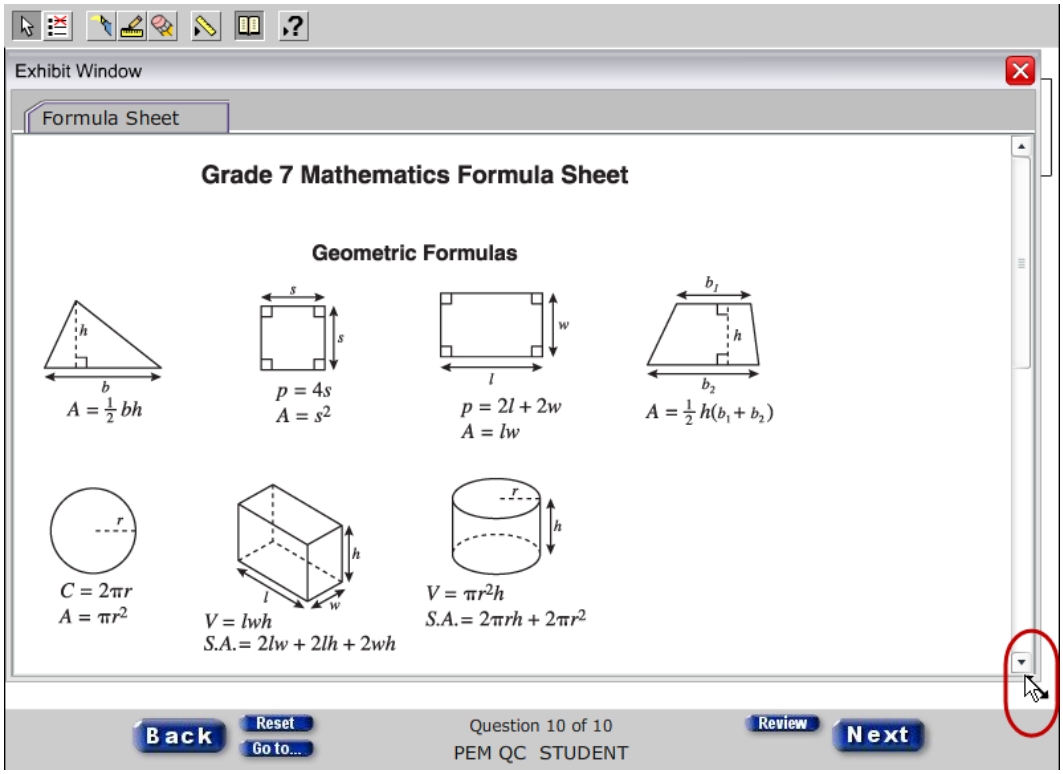
On the actual grade 7 *Mathematics Standards of Learning* test, students may need to access the formula sheet while working on a Technology Enhanced Item (TEI). Since the Exhibit tool for TEI is slightly different than the Exhibit tool for a traditional multiple choice item, allow students to practice using the Exhibit tool on this TEI item so they can become familiar with it.

SAY **Some Technology Enhanced Items on the actual Standards of Learning test may require you to access the formula sheet. The Exhibit tool, where the formula sheet is located, is slightly different on a Technology Enhanced Item than it is on a traditional multiple choice item.**

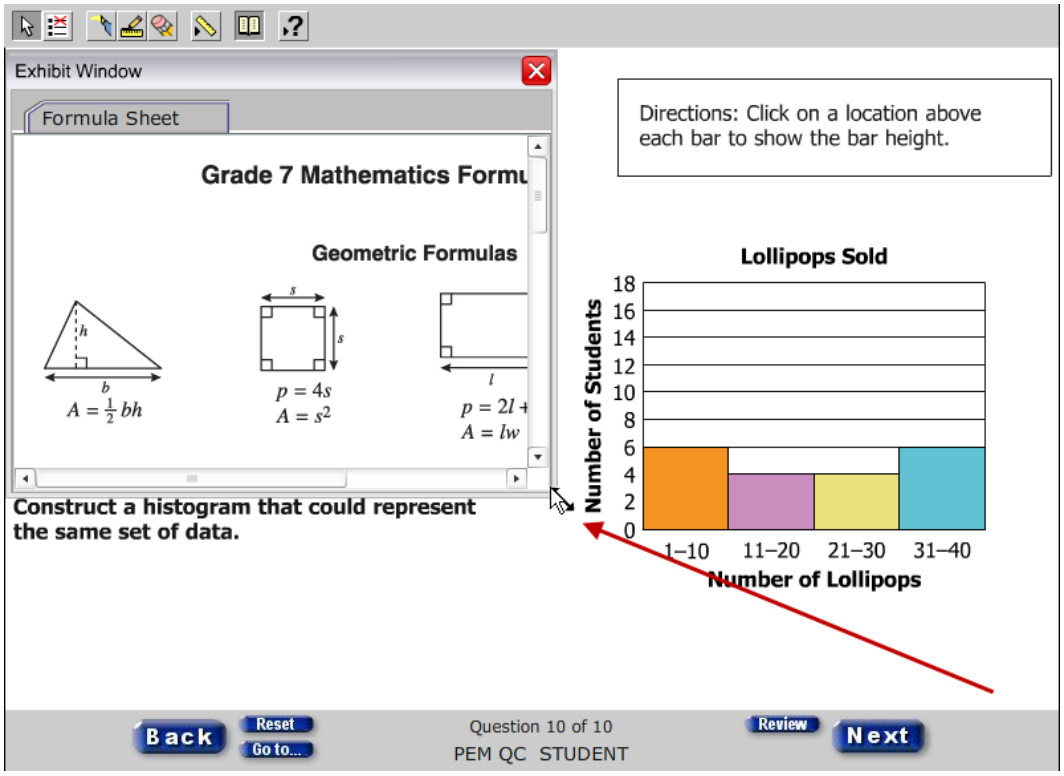
In order to see how a formula sheet on a Technology Enhanced Item is presented, click on the Exhibit tool ( ) on the toolbar to see the formula sheet. You will notice the formula sheet now covers the question.



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.**

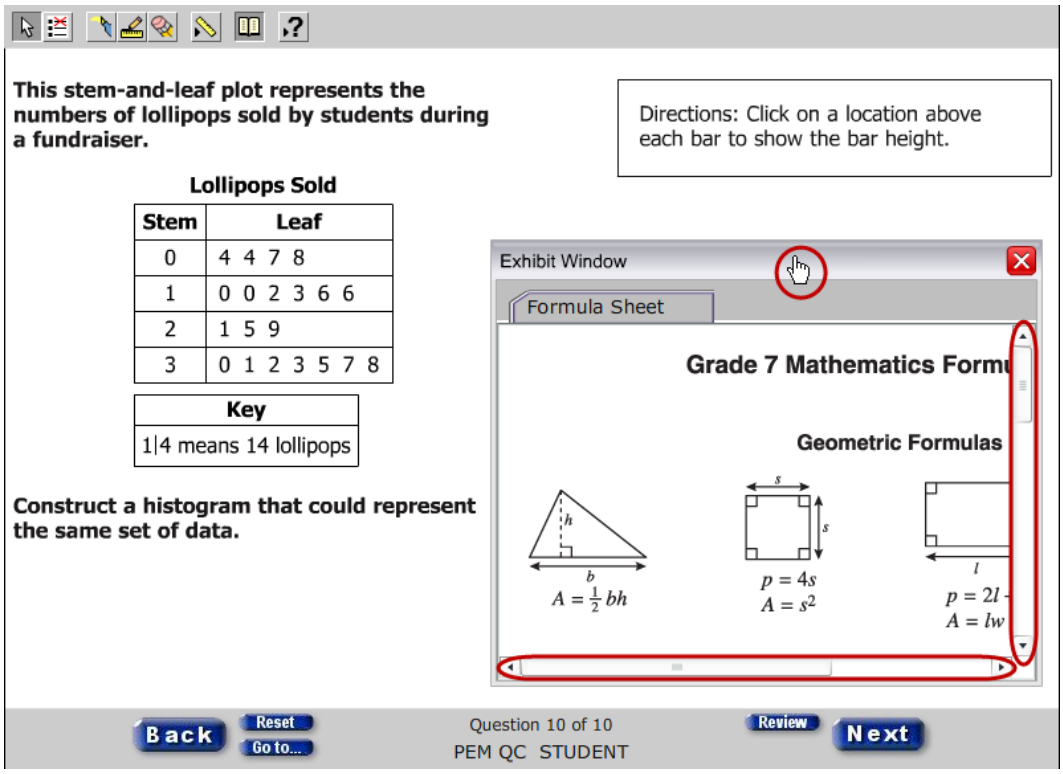


SAY **Drag your cursor towards the center of the exhibit window until the formula sheet is the desired size.**



SAY **Now you can move the formula sheet by placing your cursor on the Exhibit window task bar. The 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.



SAY **Now 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 **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.

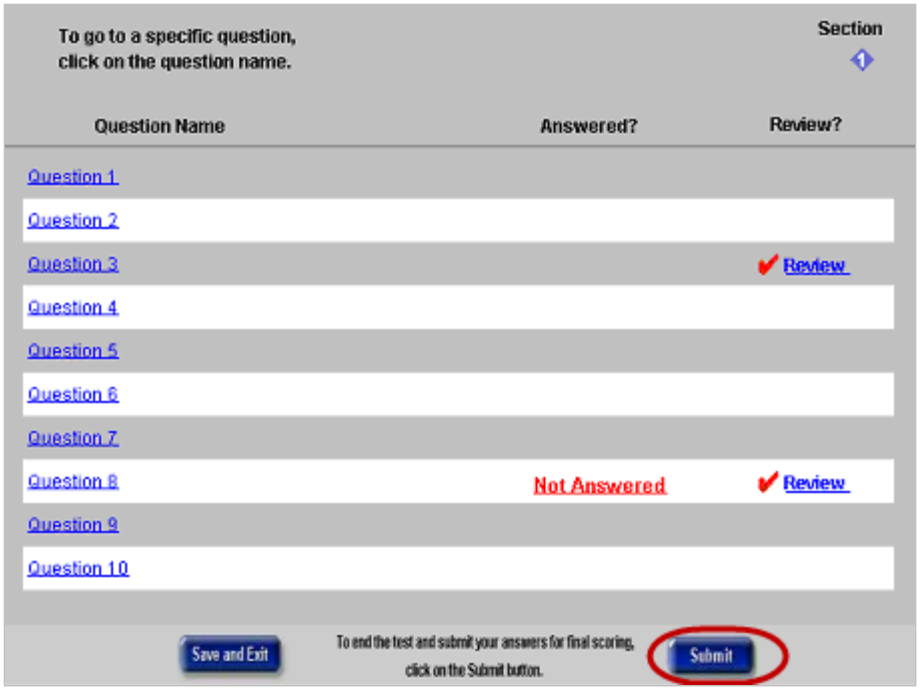
SAY **The *Review* screen shows which questions have not been answered and which questions have been checked for review. To return to a question, click on the question number.**

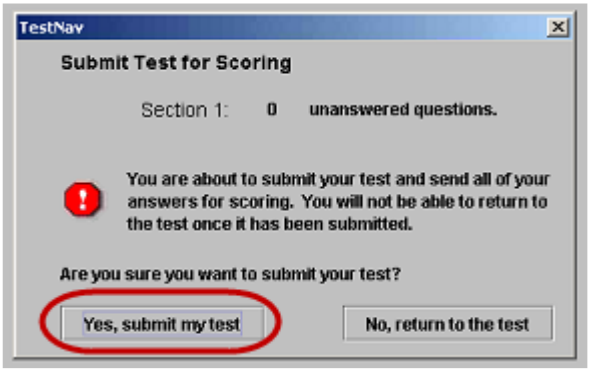
Once the practice items are reviewed and completed, click the *Submit* button. Then click "*Yes, submit my test*." Then you will see the question, "*Do you wish to end the test and submit your answers*?" Click "*Yes*." This will exit the practice items.

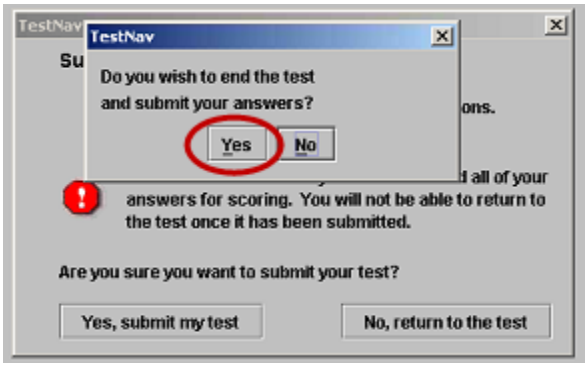
You may now practice navigating between the *Review* screen and the practice items. Then exit the practice items to end this practice session.

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