

Practice Item Guide

Virginia Standards of Learning

Grade 8 Mathematics

These practice items are meant to provide students practice with the content and types of questions that can appear on the Grade 8 Mathematics Standards of Learning (SOL) test. Students can also use these items to practice with the online tools available within TestNav™.

It is important to note that the navigation through the practice items does not replicate the navigation through the online Grade 8 Mathematics Computer Adaptive Test (CAT). Practice with the navigation through a computer adaptive test (CAT) is available in a [Mathematics CAT Training Test](#) provided on the Virginia Department of Education Web site.

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OVERVIEW

The practice items available for the Virginia Standards of Learning (SOL) Grade 8 Mathematics test provide examples of the new content and increased rigor represented by the 2009 *Mathematics Standards of Learning*. Additionally, these items illustrate the technology-enhanced item (TEI) types. These practice items do not cover all grade 8 mathematics SOL and should not be used in place of review of the SOL test content.

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 ensure that students are familiar with the types of items that they may encounter while taking the grade 8 mathematics test.

The directions in the guide will also lead students through practice with the online tools. **However, it is important to note that the navigation through these practice items does not replicate the navigation through the online version of the Computer Adaptive Test (CAT) being administered to students beginning with the fall 2015 test administration.** Practice with the navigation through a CAT is available in a [Mathematics CAT Training Test](#) provided on the Virginia Department of Education Web site.

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.

The following Change Log indicates any updates to this document.

Change Log		
Version	Dat	Description
V.1	03/20/2012	Original document posted.
V.2	03/26/2012	Dot tool information added to question #13.
V.3	10/31/2012	Various changes throughout guide regarding how TEI appear on the Section Review screen. Removed one practice item. Updated directions and screen shots for exiting TestNav. Added Appendix B.
V.4	03/15/2013	Overview amended; 19 new practice items added.
V.5	09/03/2015	Updated guide due to implementation of Computer Adaptive Testing for Grade 8 Mathematics, including removal of information about the Flag for Review Button, the Section Review Screens, closing screens, and the amendment of Appendix B.

SYSTEM REQUIREMENTS FOR TESTNAV

The minimum hardware requirements for all workstations used to access TestNav are available at <http://www.pearsononlinetesting.com/TestNav/7/index.html>

TECHNOLOGY-ENHANCED ITEM (TEI) TYPES

There are four types of technology-enhanced items:

- drag and drop,
- hot spot (which includes number line and coordinate plane items),
- bar graph or histogram, and
- fill-in-the-blank.

A brief description of each technology-enhanced item (TEI) type is provided below. The SOL practice items for grade 8 mathematics will introduce each of the TEI types: drag and drop, hot spot, bar graph, and fill-in-the-blank.

Drag and Drop

Drag and drop items contain draggers and bays.

- Draggers are the answer options that are moved to bays in response to the question.
- Bays 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 bay(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. Students can still move the dragger once it has been dropped into a bay.

Drag and drop items may be used in reading, writing, mathematics, and science assessments.

Hot Spot

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

- Hot spot zones are answer options which may be part of a graphic, art, numbers, or text, that are selected in response to a question.
- Unlike a traditional multiple-choice item where only one answer option is correct, hot spot items may require the student to select one or more hot spot zones (answer options) in order to answer the item correctly.
- Number line and coordinate plane items require students to respond by clicking on a number line or coordinate plane to plot one or more points. In these items, the points themselves are the hot spot zones. Only points plotted with the pointer tool within TestNav are scorable responses. Points plotted with the dot tool are not scorable responses.

The student selects a hot spot by clicking on it. In some hot spot items, there will be an indication on the screen, such as the zone being outlined in blue, which confirms that the pointer is over a hot spot. After the hot spot is clicked, there will always be an indication that the zone has been selected as an answer, such as the hot spot being outlined in burnt orange, the hot spot being shaded, an asterisk being placed on the hot spot, or a red point being plotted on the number line or coordinate plane.

Hot spot items may be used in reading, writing, mathematics, and science assessments.

Bar Graph or Histogram

Bar graph or histogram items require students to graph data by indicating the height (if the bars are vertical) or length (if the bars are horizontal) of one or more bars or intervals. The bar height or length is graphed by clicking on a location within the graph or by dragging the bar to the desired location.

Bar graph and histogram items may be used in mathematics and science assessments.

Fill-in-the-Blank

Fill-in-the-blank items require students to input characters from the keyboard (numbers, letters, or symbols) to answer the question. For this item type, the student responds to a question by typing into a blank box 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.
- Students should carefully follow directions in fill-in-the-blank items, such as providing an answer in simplest form, rounding a number as indicated, or using significant digits.
- Currently, no fill-in-the-blank item requires students to correctly spell a word; however, alphabetic characters or symbols may be used in an answer.

Fill-in-the-blank items are currently used in mathematics and science assessments.

OPENING THE VIRGINIA SOL MATHEMATICS PRACTICE ITEMS

1. Go to the Virginia Department of Education Web site:
http://www.doe.virginia.gov/testing/sol/practice_items/index.shtml
2. Under the heading “Mathematics Practice Items” click on the grade 8 link. Since this is a web-based application, the link will take you directly to the grade 8 mathematics practice items.

MATERIALS NEEDED FOR COMPLETING THE VIRGINIA SOL PRACTICE ITEMS

Grade 8 Mathematics: Scientific calculator, scratch paper, and pencil

ONLINE TOOLS AVAILABLE ON THE VIRGINIA SOL MATHEMATICS PRACTICE ITEMS

The following tools can be accessed by clicking the appropriate icon on the toolbar at the top of the screen. These tools can be used to assist the test taker in finding answers, and only the pointer can be used to respond to the questions.

Tool Icon	Description
	Pointer – Use the pointer to respond to questions.
	Eraser – Use the eraser to remove lines or highlights.
	Highlighter – Use the highlighter tool to highlight text or graphics.
	Eliminator – Use the eliminator tool to mark choices that you do not wish to consider.
	Pencil – Use the pencil tool to make marks on the test questions.
	Ruler – Use the ruler tool to measure something on screen.
	Straightedge – Use the straightedge tool to draw straight lines and underline text.
	Dot tool – Use the dot tool to plot dots on the screen.
	Exhibit – Click the exhibit icon to view the formula sheet.
	Help – Use the help tool to display information about a specific tool on the top toolbar.

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 SOL test. There are 32 questions that will show you some of the types of test items that will be administered as part of the grade 8 mathematics assessment. Some questions are multiple-choice and others are technology-enhanced items. Technology-enhanced items may require you show your answer in another way, such as typing the answer in a box, completing a graph, or clicking and dragging the answer to a specific location.

Listen carefully as I read the directions. I will guide you through each item one at a time. Please remember these questions are for practice. They will not be graded, and I will tell you the answer for each question.

Do you have any questions before we start?

Pause to answer questions.

SAY There are some navigation features within these practice items that will not be available when you take the actual Grade 8 Mathematics computer adaptive Standards of Learning (SOL) test. A computer adaptive test (CAT) provides a customized test for every student. When you are taking the CAT, the questions and problems presented to you will be based on how you answer the questions.

(Recommended.) We will be taking a practice CAT at another time so you can experience what the navigation through the actual SOL test will be like. Today we will be focusing on the content of the questions, the types of questions, and the online tools that are available to use.

The [Mathematics CAT Training Test](#) is comprised of previously released grade 6 mathematics test questions. It is recommended for use with grade 8 mathematics students so that they can practice navigating through a computer adaptive test prior to the actual test taking experience. Because of the limited number of grade 6 mathematics released items, the CAT training test has fewer questions than an actual SOL test. Therefore, the training test will not have the same degree of customization for different levels of achievement as the actual CAT will provide. The training test will not be scored.

The online tools available within these practice items are the same as those available in the online computer adaptive version of the test.

SAY Let's look at the bottom of the screen. Clicking *Next* takes you to the next question. Clicking *Previous* takes you back to the previous question. Notice that the question numbers are also located at the bottom of the screen. For example, the screen with Sample A reads "Sample."



SAY There is a *Flag for Review* button () located at the bottom left of the screen. Please disregard this button as we will not be using it today.

It is really important for me to say again that these features are different than what you will experience when you take the actual computer adaptive test. In the CAT, you will NOT see a *Previous* button or a *Flag for Review* button. In the CAT, you will only be able to click on the *Next* button after you have answered the question on the screen.

Now let's look at the top of your screen.

Pause. The picture below is the toolbar students will see at the top of the screen.



SAY The tools you may use are in the toolbar at the top of the screen. We will practice with some of the tools as we work through the practice questions. If you forget what a tool does, you can click on the Help symbol () to read about the tool.

The Help tool has information about the tools. If you would like your students to explore the Help tool, you can have them do this at the end of the practice items.

SAY One thing to remember is that the tools at the top of the screen are there to help you solve a problem. The only tool that can be used to mark an answer to a question is the pointer tool ().

SAY Let's look at the first item, Sample A.

SAMPLE A

Three views of a rectangular prism are shown.

Front Right Side Top

Which could be this prism?

A B C D

Sample Section 1

Flag for Review Section Review Previous Next

SAY Read the question to yourself and select the correct answer by clicking the circle next to it.

Pause while students read and answer the question.

SAY Which answer did you choose?

Pause for replies.

SAY You should have selected C.

Click *Next* at the bottom of the screen to go to the next sample item.

Pause while students go to the next sample item.

" data-bbox="175 116 875 533"/>

Directions: Type your answer in the box. Your answer must be in the form of an improper fraction. Use "/" for the fraction bar.

SAMPLE B

What is one solution to $5x + 1 = 7$?

Your answer must be in the form of an improper fraction.

$x =$

Flag for Review Sample Section 1 Section Review Previous Next

SAY Sample B has a gray directions banner under the toolbar that tells you how to answer the question. When a question has a directions banner, you should always read it before solving the problem. The directions banner says, "Type your answer in the box. Your answer must be in the form of an improper fraction. Use '/' (forward slash) for the fraction bar."

This sample question is an example of a fill-in-the-blank technology-enhanced item.

You may use scratch paper to solve for the answer. Type your answer in the box on the screen using the keyboard. Make sure you are using the pointer tool, and then click inside the box before you type your answer.

Pause while students find and enter the answer.

SAY Which answer did you type in the box?

Pause for replies.

SAY Since the directions said your answer must be an improper fraction, you should have entered the answer $6/5$. You should type *six forward slash five* ($6/5$) in the box.

Do you have any questions about how to enter your answer?

Answer all questions.

SAY Notice that the answer you entered does not need to be the same length as the box. For questions that are fill-in-the-blank, once any character is entered into the response box and remains in the response box, the question will be considered answered. 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 go to the first practice item.

Pause while students go to the first practice item.

SAY Notice the bottom of your screen now says, “Question 1 of 32.”

On the computer adaptive test, the bottom of the screen will read, for example, “Question 1” rather than “Question 1 of xx.”

SAY Read question 1 to yourself.

Pause while students read the question.

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.

SAY This item requires you to find the area of the base of a pyramid. For items where you may need a formula to solve the problem, you should refer to the formula sheet located in the toolbar to help find your answer.

Let's take a moment to locate the formula sheet. Click on the exhibit tool (), and the formula sheet will appear inside a window. You can resize the window by dragging the right corner of the window. You can use the scroll bar on the right side of the formula sheet window to view all of the formulas. After you write the formula you need on your scratch paper, click on the exhibit tool to put the formula sheet away.

Now, determine the answer and make your selection.

Pause while students work to find the answer.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is option A, 196 square inches. Do you have any questions about the answer or how to use the formula sheet?

Answer all questions.

- SAY** Before we go to the next question, let's take a moment to practice using the highlighter tool. You can use the highlighter tool on the toolbar to highlight words. To select this tool, click the icon that looks like a picture of a yellow highlighter (). Selecting the highlighter tool will change your pointer tool to an arrow with a highlighter next to it. Practice using the highlighter by highlighting the question, "What is the area of the base of this pyramid?" Click again on the highlighter tool on the toolbar to put the tool away.

Pause while students highlight the text and put the tool away. Assist students as necessary.

- SAY** Are there any questions about how to highlight text?

Answer all questions.

- SAY** Click *Next* at the bottom of the screen to go to question 2.

Pause.

The screenshot shows a digital math practice interface. At the top, there is a toolbar with various tools like a pointer, eraser, highlighter, and calculator. The user's name "john doe" and the text "Grade 8 Practice Items (2009 Math SOL)" are visible in the top right corner. The main content 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 of the interface, there is a navigation bar with buttons for "Flag for Review", "Section Review", "Previous", and "Next". The text "Question 2 of 33" and "Section 1" is also present in the bottom bar.

SAY Read the question and then solve the equation.

Pause while students read the question and determine the answer.

SAY Which answer did you choose?

Pause for replies.

SAY The correct response is C, $-\frac{6}{11}$. Do you have any questions about the answer or how to use the highlighter tool?

Answer all questions.

SAY Click *Next* at the bottom of the screen to go to question 3. Read question 3 to yourself and then determine the answer. Before you select your answer with the pointer tool, we will practice with the eliminator tool.

Pause while students read the question and determine the answer.

Which graph best represents only the solutions to $-3a + \frac{1}{2} \leq 8$?

A

B

C

D

Question 3 of 32
Section 1

Flag for Review Section Review Previous Next

SAY At the top of the toolbar, click on the button with the red X () . Selecting this tool will change your pointer to an arrow with a red X next to it. On a multiple-choice question, you can use this tool to eliminate as many choices as you want. To eliminate answers, click the choices you believe are not correct. Then click the eliminator tool again to put the tool away.

Wait for students to eliminate choices and put the tool away. The eliminator tool can only be used on multiple-choice questions and not on technology-enhanced items.

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 use your pointer tool to select the answer.

Pause while students select the answer.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is option D, the graph showing $a \geq -2\frac{1}{2}$ (a is greater than or equal to $-2\frac{1}{2}$). Are there any questions about the answer or about using the eliminator tool or eraser tool?

Answer all questions.

SAY Click *Next* at the bottom of the screen to go to question 4.

Pause.

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

Flag for Review Question 4 of 33 Section 1 Section Review Previous Next

SAY Read question 4 and then answer it.

Pause while students answer the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is option B, Additive inverse property.

Do you have any questions?

Answer all questions.

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

Pause.

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 32
Section 1

Flag for Review Section Review Previous Next

SAY You may use any of the tools we have practiced, as well as your calculator and scratch paper, to find a solution. Then select your answer.

Pause while students find and select an answer.

SAY Which answer did you choose?

Pause for replies.

SAY The correct response is B, 0.23 cm².

Before we go to the next question, let's practice using the straightedge tool. You can use the straightedge tool on the toolbar to make a straight line or to underline text. Look for

the straightedge tool icon () at the top of the screen. When you click on the straightedge tool, you will see a drop down box. Select "Tool 2." Your pointer will now have an arrow with a slanted line next to it.

Practice using the straightedge by underlining the words "total area of the shaded region." Then click again on the straightedge tool on the toolbar and on "Tool 2" to put the tool away.

Pause while students underline the text and put the tool away. Assist students as necessary.

SAY Are there any questions about using the straightedge tool?

Answer all questions.

SAY Click *Next* at the bottom of the screen to go to question 6.

Pause.

SAY Read the directions banner and then read and answer the question.

Pause while students find and enter an answer.

Directions: Type your answer in the box.

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?

%

Flag for Review Question 6 of 33 Section 1 Section Review Previous Next

SAY What answer did you enter?

Pause for student responses.

SAY The correct answer is 10%. Notice the correct answer does not need to be the same length as the box.

If a student asks about equivalent answers such as 10.0 or 10.00, these would also be considered correct responses since this response box accepts numerical characters and the decimal point.

SAY Try entering other characters into the box, such as letters, spaces, or other symbols.

Pause while students try to enter other characters. In this item, they will not be able to enter any characters other than numbers and a decimal (period).

SAY This response box will only accept numbers and a decimal. If a letter, number, or symbol does not appear in the answer box after you’ve tried it, then you cannot use that symbol in your answer.

You can use the backspace key or the delete key on the keyboard to clear your answer. To use the delete key, click in front of the numbers you want to clear; press “delete” to remove each number one at a time. Try clearing your answer and retyping it in the box.

Pause while students practice clearing and retyping the answer.

SAY Do you have any questions?

Answer all questions.

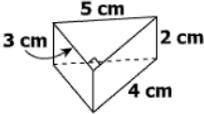
SAY Click *Next* at the bottom of the screen to go to question 7. Question 7 is also a fill-in-the-blank item. Read the item to yourself and enter your answer in the box. Remember, you may use the formula sheet located within the exhibit window.

Pause while students work to determine the answer.

John doe
Grade8 Practice Items (2009 Math SOL) [Exit](#)

Directions: Type your answer in the box.

A triangular prism is shown.



What is the total surface area of this prism?

S.A. = cm²

Flag for Review Question 7 of 32
Section 1 [Section Review](#) [Previous](#) [Next](#)

SAY What answer did you enter?

Pause for student responses.

SAY The surface area is 36 cm^2 . Are there any questions?

Answer all questions. This response box accepts numerical characters and the decimal point only. If a student asks, equivalent responses that include the decimal and trailing zero(s) are also correct.

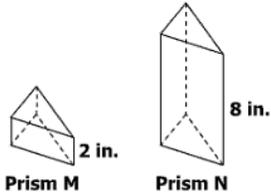
SAY Click **Next** at the bottom of the screen to go to the next question.

Pause.

John doe
Grade8 Practice Items (2009 Math SOL) Exit

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

Two triangular prisms shown have bases with the same area.



Prism M Prism N

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

Flag for Review Question 8 of 32 Section Review Previous Next

Section 1

SAY Question 8 is another example of a technology-enhanced item. The directions say, “Click on a box to choose the number you want to select.” The directions for this particular item indicate that there is one number to select. You will click on your answer choice located within the dark gray box.

On the actual SOL test, you may see questions that require you to pick one or more answers. Some questions, like this one, will indicate the number of correct answers to select. Other questions will not give you the number of answers to select, and you will have to decide how many correct answers there are.

Please make sure students understand this concept, as a traditional multiple-choice question only requires one answer.

SAY Notice with this type of question, a light blue box outlines the answer choice when you hover over it. When you click it, the answer option is outlined in orange, indicating you have selected that choice as your answer. If you change your mind, click the orange box to remove the selection, and the orange outline disappears. You can also use the eraser tool at the top of the screen to remove the orange outline that indicates your selection.

Now, find the answer to the question and select it.

Pause while students answer the question.

SAY What answer did you select?

Pause for student responses.

SAY You should have chosen the number 4.

Do you have any questions?

Answer all questions.

SAY Before we go to the next item, let's practice how you could have used the pencil tool to narrow down the answer choices. Since this is a technology-enhanced item, you cannot use the eliminator tool to eliminate your answer choices. The eliminator tool can only be used on multiple-choice questions.

Click the icon on the toolbar that looks like a green pencil (). Draw an "X" on one of the answer choices that you did not select.

If you change your mind after eliminating an answer with the pencil tool, you can use the eraser tool to remove the "X." (Pause.)

Now, practice using the pencil tool to eliminate the answer choices that were not correct, and then practice erasing them. Click on the tool icons again to put the tools away.

Pause while students practice.

SAY Do you have any questions about using the pencil tool?

Answer all questions.

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

Pause.

" data-bbox="175 116 881 530"/>

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

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.

SAY Notice the directions banner for this fill-in-the-blank item. Read the directions and the question carefully, find a solution, and type your answer in the box.

Pause while students answer the question.

SAY How did you answer the question?

Pause for replies.

SAY The correct answer is $\frac{1}{33}$. To enter this fraction in the response box, you should have typed *one forward slash thirty three*.

If you entered an equivalent fraction, such as $\frac{4}{132}$, this would not be correct, because the directions banner and the question specified the fraction should be in simplest form.

Notice the correct answer does not need to be the same length as the box.

Do you have any questions?

Answer all questions.

SAY Click *Next* at the bottom of the screen to go to question 10.

Pause.

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

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

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

Question 10 of 32
Section 1

Flag for Review Section Review Previous Next

SAY Question 10 is an example of a drag and drop technology-enhanced item. The directions banner says, “Click and drag each phrase to the correct box.”

You will click and drag your answers from the dark gray box to complete each of the sentences in the box on the left. If you do not click and drag a number into each box, the question will not be completely answered.

You may read and answer the question now. If you change your mind after clicking and dragging a phrase to a box, you can drag the phrase back to the dark gray box and then select another option.

Pause while students read and answer the question.

SAY How did you answer the question?

Pause for replies.

SAY The phrase in the top box must be “volume of the prism.” The phrase in the bottom box must be “height of the prism.” Do you have any questions?

Answer all questions.

SAY Click *Next* at the bottom of the screen to go to question 11.

Pause.

SAY Read the question to yourself and then answer it. You may use any of the tools we have practiced as you decide which option is the best choice.

Pause while students read and answer the question. The students may wish to use the straightedge tool to draw an estimated trend line for the data in some of the graphs.

The screenshot shows a math practice interface with a question: "Which scatterplot shows data with a negative relationship?". There are four scatterplots labeled A, B, C, and D. Each plot has a radio button next to it.

- Plot A: Text Messages Sent Daily**
 Y-axis: Number Sent (0 to 60)
 X-axis: Age (years) (0 to 40)
 Data points show a positive correlation.
- Plot B: Vehicle Weight vs. Vehicle Price**
 Y-axis: Price (thousands of dollars) (0 to 40)
 X-axis: Weight (thousands of pounds) (0 to 5)
 Data points show a positive correlation.
- Plot C: States**
 Y-axis: Number of States (0 to 100)
 X-axis: Year (since 2000) (0 to 7)
 Data points are constant at 50.
- Plot D: Water in a Container**
 Y-axis: Amount of Water (gallons) (0 to 60)
 X-axis: Time (minutes) (0 to 40)
 Data points show a negative correlation.

The interface also includes a toolbar at the top with various tools (eraser, highlighter, pencil, eraser, straightedge, protractor, compass, help) and a status bar at the bottom with navigation buttons (Flag for Review, Section Review, Previous, Next) and question information (Question 11 of 33, Section 1).

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is D, the scatterplot titled “Water in a Container.” Are there any questions?

Answer all questions.

SAY Click *Next* at the bottom of the screen to go to question 12.

Pause.

SAY Read the question to yourself and select an answer.

Pause while students read and answer the question.

The screenshot shows a digital assessment interface. At the top, there is a toolbar with various icons for navigation and editing, including a pointer, eraser, highlighter, and help. The user's name 'john doe' and the page title 'Grade8 Practice Items (2009 Math SOL)' are visible in the top right corner. The main content area contains the following text:

Stella has some colored cards that are the same size and shape.

- The probability of randomly selecting a blue card is 20%.
- The probability of randomly selecting a red card is 30%.

What is the probability Stella will randomly select a card that is NOT blue, replace it, then randomly select a card that is red?

Four multiple-choice options are listed:

- A 6%
- B 14%
- C 24%
- D 50%

At the bottom of the interface, there is a navigation bar with a 'Flag for Review' button, the text 'Question 12 of 32 Section 1', a 'Section Review' button, and 'Previous' and 'Next' buttons.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is C, 24%. Do you have any questions?

Answer all questions.

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

Pause.

SAY Read the directions and the question and then select an answer. In order to select an answer you will use the pointer tool to click on the number line.

Pause while students read and answer the question. Make sure students understand to use the pointer tool to answer the question. Students should not be using the dot tool.

Directions: Click on the number line to place a point that represents the value of the probability.

Lawrence has these tiles that are the same size and shape.

- 6 blue tiles
- 9 green tiles
- 10 orange tiles

What is the probability that Lawrence will randomly select an orange tile, not replace it, then randomly select a blue tile?

Plot the value of the probability on this number line.

0 $\frac{1}{2}$ 1

Question 13 of 32
Section 1

SAY Where did you place your point on the number line?

Pause for replies.

SAY The correct answer is $\frac{1}{10}$. Since the number line has been divided into tenths, your point should be on the first hatch mark to the right of zero. Do you have any questions?

Answer all questions.

SAY Before we go to the next question, let's discuss the dot tool. Look at the toolbar at the top of the screen. Locate the dot tool () that is directly to the left of the exhibit window. You can use this tool to place dots on the screen if using this tool would help you work through a problem. However, it is very important to note that you cannot use the dot tool to indicate an answer to an item. Only the pointer tool can be used to plot a point that is an answer to the question. On the SOL test, points plotted with the dot tool will not be scored.

SAY Take a moment to practice using the dot tool to see what the dots made with this tool look like. Click on the dot tool in the toolbar. Now, use the dot tool to place several dots on the number line. (Pause.)

Notice that dots placed with the dot tool are large and blue. On the SOL test, there may be items that require you to answer by selecting a point on a number line or on the coordinate grid by clicking on that location with your pointer tool. Points plotted with the pointer tool are red, so it is important to note that the dots placed with the dot tool look different than the points used to indicate your answer. These large blue dots can never be used to indicate an answer. Now click on the dot tool again to put the tool away.

Pause.

SAY You must be very careful on the SOL test not to use the dot tool to answer a question. You must only use the pointer tool to answer the item. If you mistakenly use the dot tool instead of the pointer tool in the CAT to answer a question, you will not be able to go on to the next question until you answer it using the pointer tool.

Do you have any questions about the difference between correctly plotting your answer using the pointer tool and using the dot tool?

Answer all questions. Make sure that students understand that the dot tool cannot be used to answer a question.

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

Pause.

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

Identify the relationships between the subsets of the real number system using this Venn diagram.

Real Numbers

Integers Irrational Numbers Natural Numbers Rational Numbers Whole Numbers

Question 14 of 32
Section 1

Flag for Review Section Review Previous Next

SAY Question 14 is an example of a drag and drop technology-enhanced item. The directions banner says, “Click and drag each subset to the correct box.”

You will click and drag each of the answers from the dark gray box at the bottom of the screen into the correct locations within the Venn diagram.

This question will not be completely answered until you click and drag a subset into each box in the diagram.

You may answer the question now. If you change your mind after clicking and dragging a subset to a box, you can drag that subset back to the dark gray box and then select a different option.

Pause while students answer the question.

SAY How did you answer the question?

Pause for replies.

SAY The correct response will include all of the following:
The box on the left side of the diagram must contain Irrational Numbers.
On the right side of the diagram, the boxes must contain:
Top box: Rational Numbers;
Second Box: Integers;
Third Box: Whole Numbers and
Bottom Box: Natural Numbers.

Do you have any questions?

Answer all questions.

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

Pause.

The screenshot shows a digital math practice interface. At the top, there is a toolbar with various drawing tools (arrow, eraser, pencil, highlighter, selection tools) and a 'Help' button. The user's name 'john doe' and the text 'Grade8 Practice Items(2009 Math SOL)' are visible in the top right corner, along with an 'Exit' button. The main content area contains the following text and diagram:

A composite figure is shown.

What is the total area of this figure?

A 30 cm^2

B 54 cm^2

C 59 cm^2

D 74 cm^2

At the bottom of the interface, there is a navigation bar with the following elements: 'Flag for Review', 'Question 15 of 32 Section 1', 'Section Review', 'Previous', and 'Next'.

SAY Read question 15 to yourself and then answer the question. You may use any of the tools that we have practiced to help you answer the question.

Pause while students read and answer the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is D, 74 cm^2 .

Do you have any questions?

Answer all questions.

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

Pause.

john doe
Grade8 Practice Items (2009 Math SOL) [Exit](#)

Directions: Click on a location on the grid to plot the three correct vertices. Line segments will connect the vertices.

Xavier drew triangle XYZ on a coordinate grid as shown. He plans to dilate this triangle about the origin by a scale factor of 3 to create triangle $X'Y'Z'$. Plot three points on the grid that represent the vertices of triangle $X'Y'Z'$.

Question 16 of 32
Section 1

[Flag for Review](#) [Section Review](#) [Previous](#) [Next](#)

SAY Read the directions and question 16 to yourself.

Pause while students read the question.

SAY Be sure to follow the directions given in the banner and plot three points. Also be sure to use the pointer tool, not the dot tool, to plot the points on the grid. Now find a solution and enter your answers.

Pause while students answer the question.

SAY What were the three vertices you plotted?

Pause for replies.

SAY For your answer to be correct, you must have plotted the three vertices at the points described by these ordered pairs: $(3, 3)$, $(9, -3)$ and $(-6, -3)$.

Answer all questions.

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

Pause.

The screenshot shows a digital math practice interface. At the top, there is a toolbar with various icons for navigation and editing, including a mouse cursor, eraser, highlighter, and a red 'X' for deletion. The user's name 'John Doe' and the text 'Grade 8 Practice Items (2009 Math SOL)' are visible in the top right corner, along with an 'Exit' button. Below the toolbar, a grey bar contains the directions: 'Directions: Type your answer in the box.' The main content area displays a word problem: 'Ms. Wright's two cooking classes are making a total of 60 sweet potato pies. Each pie requires $2\frac{1}{4}$ sweet potatoes. Her first class makes $\frac{1}{3}$ of the total number of pies needed. Exactly how many sweet potatoes will her second class need in order to make the remaining pies?' Below the question is a text input box followed by the text 'sweet potatoes'. At the bottom of the interface, there is a navigation bar with a 'Flag for Review' button, the text 'Question 17 of 32 Section 1', a 'Section Review' button, and 'Previous' and 'Next' buttons.

SAY Question 17 is another fill-in-the-blank technology-enhanced item. The directions say, “Type your answer in the box.”

Now read and answer this question. Enter your answer in the box.

Pause while students read and answer the question.

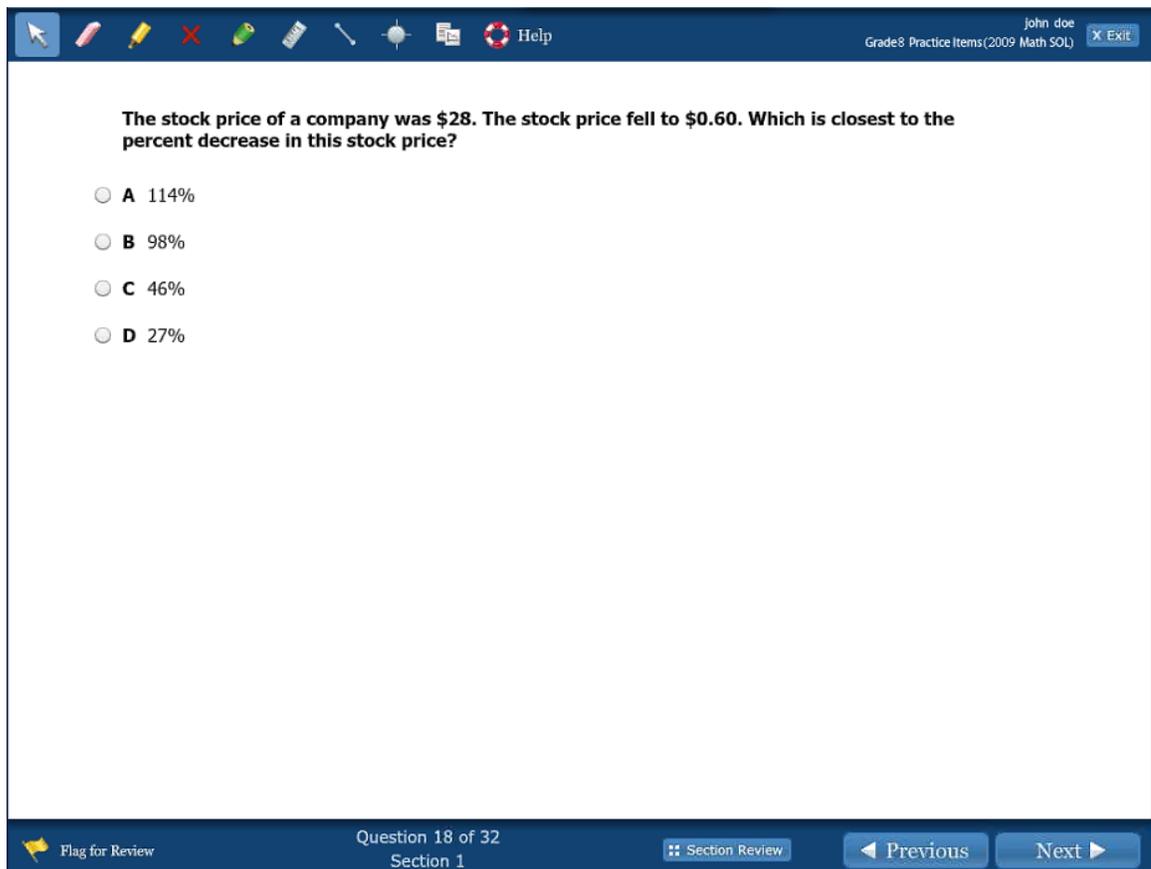
SAY How did you answer the question?

Pause for replies.

SAY The correct answer is 90 sweet potatoes. Notice the correct answer is not the same length as the box response box. For questions that are fill-in-the-blank, once any character is entered into the response box and remains in the response box, the question will be considered answered. Do you have any questions?

Answer all questions. This item only allows numbers to be entered into the response box.

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



SAY Read question 18 to yourself and then answer the question. Remember, on any multiple-choice question, you can use the eliminator tool to cross off any answer choice you do not wish to consider.

Pause while students read and answer the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is B, 98%.

Do you have any questions?

Answer all questions.

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

Pause.

The screenshot shows a digital math practice interface. At the top, there is a dark blue header bar with various icons (arrow, eraser, pencil, highlighter, X, calculator, ruler, compass, protractor, help) and the text "John doe", "Grade8 Practice Items(2009 Math SOL)", and "Exit". The main content area is white and contains the question: "What is the value of $2(c + 5) + 2c^2$ when $c = -1.2$?". Below the question are four radio button options: A 19.12, B 13.36, C 10.48, and D 5.48. At the bottom, there is a dark blue footer bar with a "Flag for Review" button, "Question 19 of 32", "Section 1", a "Section Review" button, and "Previous" and "Next" navigation buttons.

SAY Read question 19 to yourself and then answer the question.

Pause while students read and answer the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is C, 10.48.

Do you have any questions?

Answer all questions.

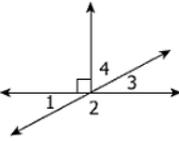
SAY Click *Next* at the bottom of the screen to continue to the next question.

Pause.

John doe
Grade8 Practice Items(2009 Math SOL) [Exit](#)

Directions: Click and drag the correct number to each box. A number may be used more than once.

Select the angle numbers that describe each classification.



Vertical Angles	Adjacent Angles	Supplementary Angles	Complementary Angles
<input type="text"/> and <input type="text"/>	4 and <input type="text"/>	3 and <input type="text"/>	3 and <input type="text"/>

1 2 3 4

Flag for Review Question 20 of 32 Section 1 [Section Review](#) [Previous](#) [Next](#)

SAY Item 20 is an example of a drag and drop technology-enhanced item. The directions banner says, “Click and drag the correct number to each box. A number may be used more than once.” You will click and drag your answers from the dark gray box into the correct locations. In order to have a complete answer, into each empty box must contain a number.

The item says, “Select the angle numbers that describe each classification.” You may answer the item now. If you change your mind after clicking and dragging a number to a box, you can drag that number back to the dark gray box and then select another number.

Take a moment and answer the question.

Pause while students answer the item.

SAY How did you answer the item?

Pause for replies.

SAY You should have the numbers 1 and 3 in the “Vertical Angles” box (in any order), the number 3 in the “Adjacent Angles” box, the number 2 in the “Supplementary Angles” box, and the number 4 in the “Complementary Angles” box. You must have the correct number in each location for your answer to be correct.

SAY Do you have any questions on how to answer the question?

Answer all questions.

SAY Click the *Next* button at the bottom of the screen to go to question 21.

The screenshot shows a digital assessment interface. At the top, there is a toolbar with various icons (pencil, eraser, highlighter, selection tools) and a 'Help' button. The user's name 'John doe' and the test title 'Grade8 Practice Items(2009 Math SOL)' are visible in the top right corner. A dark gray banner contains the directions: 'Directions: Click on a box to choose a figure. You must select all correct figures.' Below this, the question text reads: 'The front view of a three-dimensional figure using identical cubes is shown.' A 2D grid of yellow cubes represents the front view, with a height of 3 cubes on the left and a height of 2 cubes on the right. Below the grid is the label 'Front'. The question asks: 'Identify each three-dimensional figure that has this front view.' Four 3D figures are shown in a row, each in a separate box. The first figure is a 2x2x2 cube. The second figure is a 3x2x2 rectangular prism. The third figure is a 3x2x1 rectangular prism. The fourth figure is a 3x2x1 rectangular prism with a cube on top of the back-right corner. At the bottom of the interface, there is a navigation bar with a 'Flag for Review' button, 'Question 21 of 32 Section 1', a 'Section Review' button, and 'Previous' and 'Next' buttons.

SAY The gray directions banner for this question says, “Click on a box to choose a figure. You must select all correct figures.”

To answer this question, you must click on the figures within the dark gray box. The directions or question do not tell you how many correct answers there are, so you will have to decide how many answer choices are correct.

Answer the question now. Remember, you can use the pencil tool to narrow down the answer choices on technology-enhanced items like this one.

Pause while students answer the question.

SAY Which answer or answers did you select?

Pause for replies.

SAY You should have selected the second figure from the left and the fourth figure from the left. You must have selected both of these figures, and only these figures, to be scored as correct.

Do you have any questions?

Answer all questions.

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

Pause.

John doe
Grade8 Practice Items(2009 Math SOL) [X Exit](#)

Leslie built a walkway around a rectangular garden as shown. The walkway is the same width on all sides of the garden.

3 ft

Walkway

Garden

20 ft

30 ft

What is the perimeter of this garden?

A 100 ft

B 94 ft

C 88 ft

D 76 ft

Flag for Review

Question 22 of 32
Section 1

Section Review

Previous Next

SAY Read question 22 to yourself and then answer the question.

Pause while students read and answer the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is D, 76 ft.

Do you have any questions?

Answer all questions.

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

The screenshot shows a digital math practice interface. At the top, there is a toolbar with various icons and a 'Help' button. The user's name 'John doe' and 'Grade8 Practice Items (2009 Math SOL)' are displayed in the top right corner. The main content area contains the following text and diagrams:

The two spinners are divided equally as shown.

The first spinner is divided into 8 equal sectors. The sectors are labeled with numbers: 3, 1, 2, 3, 4, 1, 2, 1. An arrow points to the sector labeled '4'.

The second spinner is divided into 8 equal sectors. The sectors are labeled with letters: Y, R, G, G, B, P, Y, R. An arrow points to the sector labeled 'R'.

The arrow of each spinner is spun once. What is the probability the arrows will land on a section labeled "1" and a section labeled "G"?

Four multiple-choice options are listed:

- A $\frac{5}{8}$
- B $\frac{5}{16}$
- C $\frac{3}{32}$
- D $\frac{1}{64}$

At the bottom of the interface, there is a navigation bar with the following elements:

- Flag for Review
- Question 23 of 32
- Section 1
- Section Review
- Previous
- Next

SAY Read question 23 to yourself and then answer the question.

Pause while students read and answer the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is C, $\frac{3}{32}$.

Do you have any questions?

Answer all questions.

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

Pause.

SAY Read question 24 to yourself and then answer the question.

Pause while students read and answer the question.

The graph shows the median weekly earnings in 2009 in the United States based on education level.

Median Weekly Earnings in 2009

Type of Degree	Earnings (dollars)
Less Than H.S. Diploma	400
H.S. Diploma	600
Bachelor's	1,000
Master's	1,200
Doctorate	1,400

Based on the graph, which statement is true about the median weekly earnings?

- A A person with a bachelor's degree earned \$600 more per week than a person with a high school diploma.
- B A person with a doctorate degree earned \$1,000 more per week than a person with a bachelor's degree.
- C A person with a master's degree earned about twice the amount per week as a person with a high school diploma.
- D A person with a doctorate degree earned more than four times the amount per week as a person with less than a high school diploma.

Question 24 of 32
Section 1

Flag for Review Section Review Previous Next

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is C, A person with a master's degree earned about twice the amount per week than a person with a high school diploma.

Do you have any questions?

Answer all questions.

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

Pause.

SAY Read question 25 to yourself and then answer the question.

The steps used to solve an equation are shown.

Step 1 : $9r = 54$

Step 2 : $\left(\frac{1}{9}\right)9r = \left(\frac{1}{9}\right)54$

Step 3 : $\left(\frac{1}{9} \cdot 9\right)r = \left(\frac{1}{9}\right)54$

Step 4 : $1 \cdot r = \left(\frac{1}{9}\right)54$

Step 5 : $r = \left(\frac{1}{9}\right)54$

Step 6 : $r = 6$

What property justifies the work between Step 4 and Step 5 ?

A Commutative property of multiplication

B Associative property of multiplication

C Inverse property of multiplication

D Identity property of multiplication

Flag for Review Question 26 of 32 Section 1 Section Review Previous Next

SAY Read question 26 to yourself and then answer the question.

Pause while students read and answer the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is D, Identity property of multiplication.

Do you have any questions?

Answer all questions.

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

Pause.

SAY Question 27 is an example of a fill-in-the-blank item. The directions say, "Type your answer in the box."

Now read and answer this question.

Pause while students read and answer the question.

The screenshot shows a digital math practice interface. At the top, there is a toolbar with various icons for editing and a 'Help' button. The user's name 'John doe' and the text 'Grade8 Practice Items (2009 Math SOL)' are visible in the top right corner. Below the toolbar, a grey bar contains the directions: 'Directions: Type your answer in the box.' The main area of the screen displays the question: 'What value of x makes this equation true?' followed by the equation $-\frac{1}{4}x - 12 = x + 3$. Below the equation, there is a text input field with 'x =' followed by a small rectangular box for the answer. At the bottom of the interface, there is a navigation bar with a 'Flag for Review' button, the text 'Question 27 of 32 Section 1', a 'Section Review' button, and 'Previous' and 'Next' buttons.

SAY How did you answer the question?

Pause for replies.

SAY The correct answer is $x = -12$.

Notice the correct answer does not need to be the same length as the box.

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

Answer all questions. This response box accepts numbers, the decimal point (.), and the negative sign (–). If a student asks, an answer that is equivalent to -12 , such as -12.0 , will be scored as correct.

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

Directions: Click and drag each selected number and symbol to the box.

What is the solution to $6 \geq \frac{1}{2}x + 21$?

x

-30 \geq
 -27 \leq
 27
 30

Flag for Review Question 28 of 32 Section 1 Section Review Previous Next

SAY Question 28 is an example of a drag and drop technology-enhanced item. The directions banner says, “Click and drag each selected number and symbol to the box.”

You will create an answer by clicking and dragging choices from the dark gray boxes into the correct empty boxes. If you change your mind after clicking and dragging a number or a symbol to a box, you can drag that number or symbol back to its original dark gray box and then make another choice.

Both boxes must be filled in order for this item to be completely answered.

You may answer the question now.

Pause while students answer the question.

SAY How did you answer the question?

Pause for replies.

SAY Negative 30 (–30) must be in the box on the left and greater than or equal to (\geq) must be in the box on the right. You must have placed both of these options in the correct locations for your answer to be considered correct.

SAY Do you have any questions?

Answer all questions.

SAY Click the *Next* button at the bottom of the screen to go to question 29.

Pause.

SAY The gray directions banner for this question says, “Click on a box to choose a number. You must select all correct numbers.” The item says, “Identify each integer.”

John doe
Grade8 Practice Items (2009 Math SOL) X Exit

Directions: Click on a box to choose a number. You must select all correct numbers.

Identify each integer.

$\sqrt{36}$	0.8	$-\frac{1}{6}$	-11	$\frac{75}{3}$
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Flag for Review Question 29 of 32 Section 1 Section Review Previous Next

SAY To answer this question, you must click on all of the correct answers. This item does not tell you how many answers to select, so you will have to decide how many correct answers there are. There may be more than one correct answer.

Answer the question now.

Pause while students answer the question.

SAY Which answer or answers did you select?

Pause for replies.

SAY To answer this question correctly, you must have selected the numbers $\sqrt{36}$, -11 , and $\frac{75}{3}$, and only those numbers.

Do you have any questions?

Answer all questions.

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

Pause.

SAY Read question 30 to yourself and then answer the question.

Pause while students read and answer the question.

The screenshot shows a digital math practice interface. At the top, there is a toolbar with various icons for navigation and editing, including a mouse cursor, eraser, highlighter, and a 'Help' button. The user's name 'John doe' and the text 'Grade8 Practice Items (2009 Math SOL)' are visible in the top right corner, along with an 'Exit' button. The main content area displays the question: 'Which set has a domain of {2, 3} and a range of {5, 8}?' followed by four multiple-choice options: A {(2, 8), (3, 5), (3, 0)}, B {(3, 5), (2, 5), (3, 8)}, C {(5, 8), (2, 3), (3, 5)}, and D {(8, 3), (8, 2), (5, 2)}. At the bottom of the interface, there is a navigation bar with a 'Flag for Review' button, the text 'Question 30 of 32 Section 1', a 'Section Review' button, and 'Previous' and 'Next' buttons.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is B, { (3, 5), (2, 5), (3, 8) }.

Do you have any questions?

Answer all questions.

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

Pause.

The screenshot shows a math practice interface with a blue header bar. The header contains various icons (arrow, eraser, pencil, red X, green checkmark, calculator, ruler, compass, eraser, help) and the text "john doe", "Grade8 Practice Items(2009 Math SOL)", and "Exit".

The main content area contains the following text:

Which table of values is represented by this rule?

"Two and six-tenths times a number, x, plus five is y."

Four tables of values are presented, each with a radio button next to its label:

- A**

x	y
2	5.2
5	13.0
- B**

x	y
2	10.2
5	18.0
- C**

x	y
2	15.2
5	38.0
- D**

x	y
2	18.2
5	26.0

The bottom bar contains a "Flag for Review" button, "Question 31 of 32", "Section 1", "Section Review" button, "Previous" button, and "Next" button.

SAY Read question 31 to yourself and then answer the question.

Pause while students read and answer the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is B.

Do you have any questions?

Answer all questions.

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

Pause.

The screenshot shows a digital math practice interface. At the top, there is a toolbar with various icons for navigation and editing, and a user profile section for 'john doe' with an 'Exit' button. The main content area contains the text 'Look at these angles.' followed by four angles labeled M, N, P, and Q. Angle M is 71 degrees, angle N is 109 degrees, angle P is 19 degrees, and angle Q is 71 degrees. Below the angles is the question 'Which two angles are complementary?' and four multiple-choice options: A $\angle M$ and $\angle Q$, B $\angle N$ and $\angle P$, C $\angle P$ and $\angle Q$, and D $\angle M$ and $\angle N$. At the bottom of the interface, there is a navigation bar with 'Flag for Review', 'Question 32 of 32 Section 1', 'Section Review', 'Previous', and 'Next' buttons.

SAY Read question 32 to yourself and then answer the question.

Pause while students read and answer the question.

SAY Which answer did you choose?

Pause for replies.

SAY The correct answer is C, $\angle P$ and $\angle Q$.

Do you have any questions?

Answer all questions.

If you want your students to practice using the Help tool (as mentioned on page 9), they can do so now.

The ruler was not practiced as students worked through the practice items. If you would like the students to practice with the ruler, have them return to question 10 and measure the width of the dark gray box. The student may measure it in inches or centimeters (cm), whichever you prefer.

The box width is approximately $2\frac{3}{8}$ inches or 5.9 centimeters.

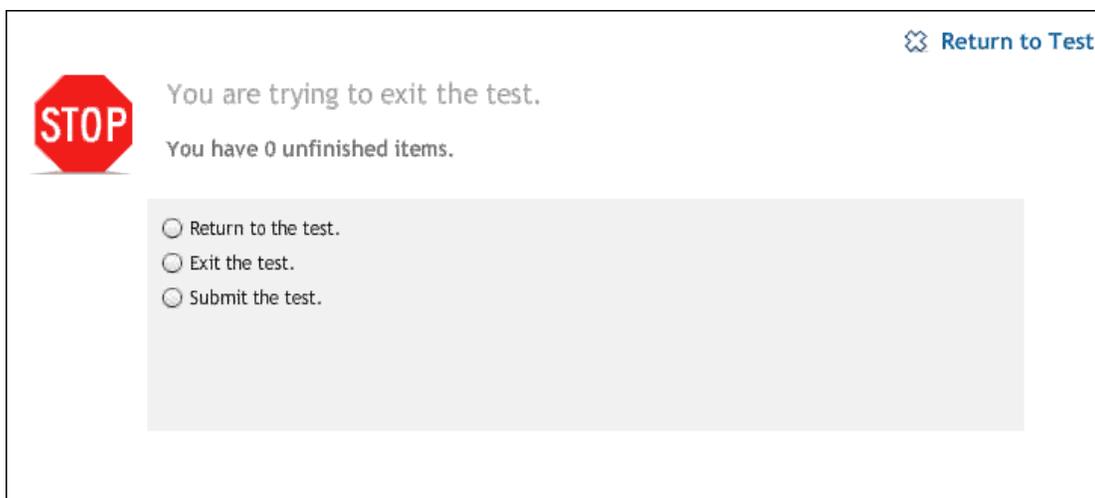
SAY You have completed the practice items. Are there any questions on anything we have reviewed today?

Answer all questions.

Since the Grade 8 Mathematics CAT does not have a Section Review screen, the remainder of these instructions will close TestNav on the student’s workstation without discussion of the Section Review screen. Please have students use the [Mathematics CAT Training Test](#) to experience how they will exit TestNav from the CAT.

SAY Now click the *Exit* button in the top right of the screen. (Pause.)

You will see a stop sign with three choices.



SAY Select the third choice, “*Submit the test.*” A green box will appear that says, “*Final Submit.*” Click on this box. Once you click on this box, another box will appear that says, “*Close TestNav.*” Click on this box.

Students will not see this screen in the CAT because a completed CAT is submitted automatically for a student. However, “Close TestNav” will appear on their screen after they have finished the test so they will know it has been submitted.

SAY This completes our review of the Grade 8 SOL Mathematics Practice items.

Thank you for reviewing the Grade 8 Mathematics Practice Items with your students.

APPENDIX A

Answers to Grade 8 Mathematics Practice Items

Sample A

The correct answer is C.

Sample B

The correct answer is $\frac{6}{5}$.

Question 1

The correct answer is A, 196 square inches.

Question 2

The correct answer is C, $\frac{-6}{11}$.

Question 3

The correct answer is D, the graph showing a is greater than or equal to $-2\frac{1}{2}$.

Question 4

The correct answer is B, Additive inverse property.

Question 5

The correct answer is B, 0.23 cm^2 .

Question 6

The correct answer is 10%.

Question 7

The correct answer is 36 cm^2 .

Question 8

The correct answer is 4.

Question 9

The correct answer is $\frac{1}{33}$.

Question 10

The top box should contain the phrase “volume of the prism.”

The bottom box should contain the phrase “height of the prism.”

Question 11

The correct answer is D, the scatterplot titled “Water in a Container.”

Question 12

The correct answer is C, 24%.

Answers to Grade 8 Mathematics Practice Items (continued)**Question 13**

The point should be plotted on the first hatch mark to the right of zero, at $\frac{1}{10}$.

Question 14

The correct answer includes all of the following:

The box on the left side of the diagram must contain Irrational Numbers.

On the right side of the diagram, the boxes must contain:

Top box: Rational Numbers;

Second Box: Integers;

Third Box: Whole Numbers; and

Bottom Box: Natural Numbers.

Question 15

The correct answer is D, 74 cm².

Question 16

You must have plotted the three vertices at the locations described by the ordered pairs (3,3), (9, -3) and (-6, -3).

Question 17

The correct answer is 90 sweet potatoes.

Question 18

The correct answer is B, 98%.

Question 19

The correct answer is C, 10.48.

Question 20

You should have the numbers 1 and 3 in the “Vertical Angles” box (in any order), the number 3 in the “Adjacent Angles” box, the number 2 in the “Supplementary Angles” box, and the number 4 in the “Complementary Angles” box.

Question 21

To answer this question correctly, you must have selected both the second figure from the left and the fourth figure from the left. You must have selected both of these figures, and only these figures.

Question 22

The correct answer is D, 76 ft.

Question 23

The correct answer is C, $\frac{3}{32}$.

Question 24

The correct answer is C, A person with a master’s degree earned about twice the amount per week than a person with a high school diploma.

Answers to Grade 8 Mathematics Practice Items (continued)

Question 25

The correct answer is C, $\frac{45}{512}$.

Question 26

The correct answer is D, Identity property of multiplication.

Question 27

The correct answer is $x = -12$.

Question 28

To answer this question correctly, -30 must be in the left box and \geq must be in the box on the right.

Question 29

To answer this question correctly, you must have selected the numbers $\sqrt{36}$, -11 , and $\frac{75}{3}$, and only those numbers.

Question 30

The correct answer is B, $\{(3, 5), (2, 5), (3, 8)\}$.

Question 31

The correct answer is B.

Question 32

The correct answer is C, $\angle P$ and $\angle Q$.

APPENDIX B

An Overview of when a Technology-Enhanced Item (TEI) is Considered “Answered” by the Student

On the Computer Adaptive Test (CAT), the student cannot proceed to the next question until the current question is considered “Answered.” When an item is considered “Answered” the *Next* button on the bottom toolbar will be active. Once the *Next* button is selected, the student will proceed to the next question and will not be able to return to any previously answered question.

These criteria will be used to determine when a TEI is considered “Answered.”

Fill-in-the-blank (FIB) Items

For all fill-in-the-blank items, when a student enters any character into the response box, the item will be considered answered. If a student enters an answer and then completely removes that answer from the fill-in-the-blank box, the item will be considered unanswered.

Histogram or Bar Graph Items

For all histogram or bar graph items, when a student raises any bar, the item will be considered answered. If the student moves all bars back down to the original heights, the item will be considered unanswered.

Hot Spot Items

When the number of correct responses is indicated in the directions or in the item itself, the item will be considered answered only when the student selects that number of hot spots. For example, if the student is directed to select three answers, the item will be considered unanswered if the student selects one or two answers. It will only be considered answered once the student has selected three answers. If the number of correct responses is not indicated in the directions or in the question itself, then the item will be considered as answered once the student selects one answer. For example, if the student is required to “Select all the correct answers,” the item will be considered as answered once the student selects one answer option. In this case, it is assumed that the student thought there was only one correct answer.

Number Line or Coordinate Plane Items

Many number line or coordinate plane items require the student to plot one or more points as the response. When the number of points necessary to answer the item is indicated in the directions or the item itself, the item will be considered answered only when the specified number of points has been plotted. When the directions or the item do not specify the number of points to plot, the item will be considered answered once the student plots one point. Only points that have been plotted with the pointer tool are scorable responses. Points plotted with the dot tool are not scorable responses. If a student answers a question with the dot tool, the question will not be considered answered.

APPENDIX B (continued)**Drag and Drop Items**

Drag and drop items contain answer receptacles called “bays” and “dragers” that the student moves into the bays to answer the question. There are many types of drag and drop items, and each item is evaluated individually as to when it is considered answered. For items with a specified number of bays, the item will show be considered as answered once the student uses that number of dragers. For example, if there are three bays and it is intended for a dragger to be placed into each bay, then the item will be considered answered once three dragers have been input by the student. Or, in another example, if the directions or question indicate that all dragers need to be used to answer the item, then the item will be considered as answered only when all dragers have been used. If the number of dragers necessary to answer the question is not indicated, such as an item that requires the use of a dragger to complete a model or pictograph, the item will be considered as answered once the student places one dragger in a bay.