

Virginia

Standards of Learning Guided Practice Suggestions

For use with the Grade 8 Mathematics
Practice Items in TestNav™ 8

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Change Log

Updates to this document will be reflected in the table.

Change Log		
Version	Date	Description
V.3	10/21/2016	General information updated.
V.2	09/16/2016	Update Available Tools
V.1	07/08/2016	Original Document Posted

Introduction to TestNav™ 8: MC/TEI Document

The [Introduction to TestNav 8: MC/TEI](#) document serves as an introduction to the new online navigation, tools, accessibility features, and overall functionality and appearance of TestNav 8. It is highly recommended that teachers (or other adults) read the *Introduction to TestNav 8: MC/TEI* document prior to reading this guide, the *Guided Practice Suggestions* for the Grade 8 Mathematics practice item set.

Reading the *Introduction to TestNav 8: MC/TEI* document will give teachers an understanding of the features of TestNav 8 prior to working with students. In part, the document provides information on:

- opening the practice item sets within the required TestNav 8 Application,
- navigating through the practice item sets,
- answering technology-enhanced items (TEI) and multiple-choice items,
- using the online tools, and
- using the accessibility features available in TestNav 8.


This important information should be used in conjunction with the information found in this guide.

Guided Practice Suggestions

This guide provides specific item information for each question in the Grade 8 Mathematics practice item set in table format. Along with the item information in the table, there is a column titled “Guided Practice Suggestions.” This column contains information for teachers as they guide students through the practice items. For instance, guided practice suggestions can state, “Use the eliminator tool to place a red ‘X’ on the answers that are not correct,” or, “Make sure students know how to select draggers and place them in the empty boxes using their mouse, keypad, or touchscreen.” Following the suggestions in the table will ensure that students are exposed to all of the different tools within TestNav 8, the different functionality features of TEI, and the common messages that may appear as students complete TEI.


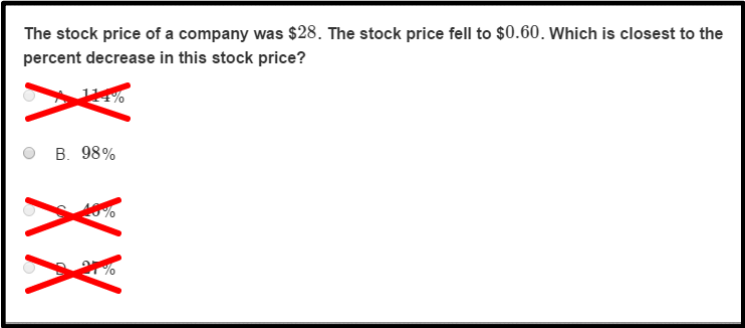
Grade 8 Mathematics Practice Item Information and Recommended Guided Practice Suggestions

General Note about the Grade 8 Mathematics Practice Items: Since Grade 8 students will be taking a computer adaptive version of the mathematics Standards of Learning test, there is no mention of using the *Bookmark* button to review items and no reference to the *Review* button to determine the status of questions. However, information about when a TEI will be considered “Answered” is provided in the table since this determines when the *forward arrow* button becomes active in the computer adaptive test (CAT).

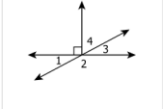



Question	Item Type	Answer Key	Guided Practice Suggestions
1	TEI Drag and Drop	On the left: Irrational Numbers On the right, top to bottom: Rational Numbers, Integers, Whole Numbers, Natural Numbers All answers must be placed in the correct boxes.	<p>Throughout the practice item set, move to the next or previous screen in a section by selecting an arrow in the top left corner of the screen. An arrow with a blue background indicates the button is active and can be selected. (On the actual computer adaptive test, only the forward arrow will be active.)</p>  <p>Have students select draggers and place them in the empty boxes using the mouse, keypad, or touchscreen.</p> <p>Selecting a dragger and moving it to the empty box may cause the remaining draggers to shift location in the answer option area.</p> <p>Have students practice moving draggers back to the gray box. Draggers will go back to their original location when returned to the gray box.</p> <p>This item will not be considered “Answered” until each box has an answer in it.</p>




Question	Item Type	Answer Key	Guided Practice Suggestions
2	TEI Hot Spot	All of these answers must be selected, and only these answers: $\sqrt{36}$, -11 , and $\frac{75}{3}$	<p>To answer this question correctly, the three correct answers in the gray box must be selected. A blue box outlines the answer choice when it is selected, indicating a student has chosen that response as an answer.</p> <div data-bbox="1087 402 1598 621" style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p>Directions: Select all the correct answers.</p> <p>Identify each integer.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="border: 1px solid blue; padding: 2px;">$\sqrt{36}$</div> <div style="border: 1px solid blue; padding: 2px; text-align: center;">0</div> <div style="border: 1px solid blue; padding: 2px; text-align: center;">$-\frac{1}{6}$</div> <div style="border: 1px solid blue; padding: 2px;">-11</div> <div style="border: 1px solid blue; padding: 2px;">$\frac{75}{3}$</div> </div> </div> <p>In order to deselect an answer and remove the blue box, the answer choice must be selected again. Have students practice selecting and deselecting an answer.</p> <p>The answer eliminator may also be used on this item to eliminate answer options. Have students select the eliminator tool located in the toolbar and then place a red "X" on the answers that are not correct.</p> <p>To remove an "X" keep the eliminator tool active and select the "X" to remove it. Have students practice removing an "X."</p> <p>The eliminator tool may also be used to eliminate an answer that was selected with the pointer tool.</p> <p>Tell students that when there are an unspecified number of answers, the question will be considered "Answered" when one answer has been selected. This is so no clue or hint is given as to how many answers are correct. (On a computer adaptive test, the <i>Next</i> arrow will turn active once an item is considered answered.</p>

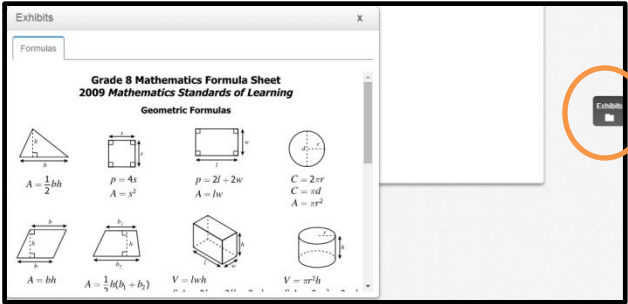
Question	Item Type	Answer Key	Guided Practice Suggestions
3	TEI Fill-in-the-Blank	90	<p>Have students attempt to enter a character that cannot be used as part of the answer (e.g., a decimal point). A message will appear that states:</p> <p style="text-align: center;">You cannot use that character.</p> <p>This message will remain on the screen for approximately three seconds.</p> <p>Tell students that the answer does not need to be as long as the response box. Also, tell students that answers with four or more digits will be scored as correct with or without the use of commas. If a comma is used, it must be in the correct location within the number.</p>

Question	Item Type	Answer Key	Guided Practice Suggestions
4	MC	B 98 %	<p>Have students select the eliminator tool located in the toolbar and then place a red "X" on the answers that are not correct.</p>  <p>To remove an "X" keep the eliminator tool active and select the "X" again. Have students practice removing an "X."</p>  <p>Tell students: Multiple-choice items must be answered in TestNav 8 by selecting the letter of the answer option or the option itself using the mouse, keypad, or touchscreen. On multiple-choice items, once an answer is selected, the item cannot be returned to an unanswered state (no answer selected) unless the student uses the eliminator tool to place an "X" over the selected answer and then selects the "X" again to remove it.</p> <p>Remind students that placing an "X" on the incorrect answer choices does not complete the item. A selection must be made with the pointer tool in order for the item to be considered "Answered."</p>

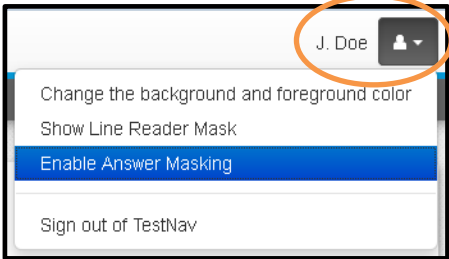
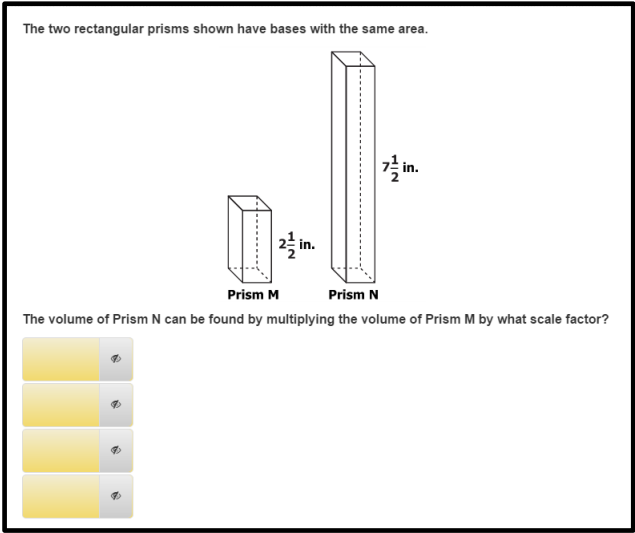
Question	Item Type	Answer Key	Guided Practice Suggestions
5	TEI Fill-in-the-Blank	10 %	<p>A blank space can never be entered into a response box. If a student tries to enter a blank space, this message will appear:</p> <p style="text-align: center;">You cannot use that character.</p> <p>Tell students that the answer does not need to be as long as the response box.</p> <p>Information for teachers: Answers with trailing zeros would be scored as correct (e.g., 10.0, 10.00, 10.000).</p>
6	MC	C \$10.48	
7	MC	C $\angle P$ and $\angle Q$	
8	TEI Drag and Drop	All answer must be placed in the correct box, from left to right: 1, 3, 3, 2, 4	<p>Have students select the number 1. As they move this number, all of the boxes shade blue. This indicates that the number can be placed in any box- whichever location the student chooses as the correct location.</p> <p>Have students try to place one dragger “over” another dragger. This cannot be done. If a student wishes to change an answer, the dragger must be moved back to the gray box and another option must be selected and moved into the response box.</p> <p>This item will not be considered “Answered” until each box has an answer in it.</p>

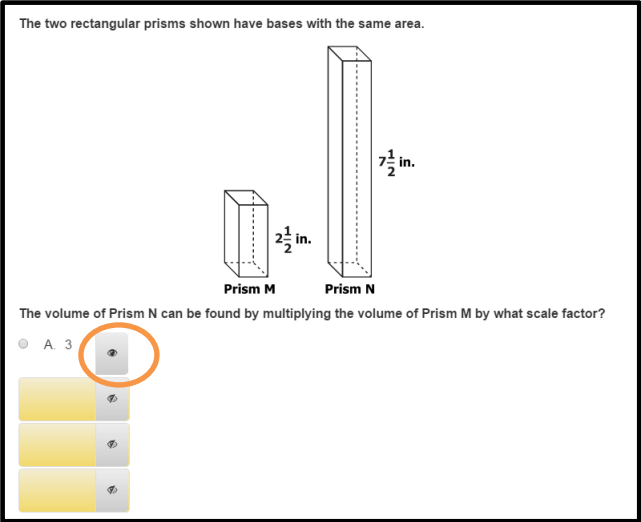
Question	Item Type	Answer Key	Guided Practice Suggestions								
8 (Cont.)			<p>This question also has the Drawing Interaction Tool. The Drawing Interaction Tool is a boxed area that exists on certain mathematics questions. The pencil may be used to make marks, notations, straight lines, or dots on or around artwork or graphs inside the Drawing Interaction area. The student selects the specific tool he/she wants to use, and uses it to help answer the question.</p> <div data-bbox="1142 500 1625 837" style="border: 1px solid black; padding: 5px;"> <p>Directions: Drag the answers to the correct boxes. Each number may be used more than one time. Select the angle numbers that describe each classification.</p>  <table border="1" data-bbox="1220 716 1577 776"> <thead> <tr> <th>Vertical Angles</th> <th>Adjacent Angles</th> <th>Supplementary Angles</th> <th>Complementary Angles</th> </tr> </thead> <tbody> <tr> <td><input type="text"/> and <input type="text"/></td> <td>4 and <input type="text"/></td> <td>3 and <input type="text"/></td> <td>3 and <input type="text"/></td> </tr> </tbody> </table> <p style="text-align: center;">1 2 3 4</p> </div> <p>The top tool is the pencil or straight line tool. The arrow in the bottom right corner expands the tool so a student may select free draw or the straight line. A dot may be placed if a student uses their mouse, keypad, or touchscreen. The student would select free draw and use their mouse or keypad to click and release to place a point. If using a touchscreen, the student would use their finger to place a point.</p>  <p>The second tool is used to erase selected lines or writing.</p>  <p>The third tool allows the markings to be black or green. The arrow in the bottom right corner expands the tool so a student may select the color.</p> 	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"/>
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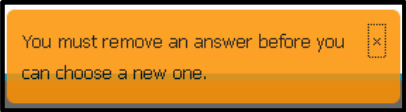
Question	Item Type	Answer Key	Guided Practice Suggestions
8 (Cont.)			<p>The fourth tool allows the students to select the thickness of the markings. The arrow in the bottom right corner expands the tool so a student may select the size. </p> <p>The fifth and sixth tools are to Undo or Redo the most recent markings. </p> <p>The last tool allows all markings to be eliminated at the same time. </p> <p>Have students practice drawing markings and removing them to help answer the question.</p> <p>Students must select the correct answer using the answer options below the Drawing Interaction Tool.</p>

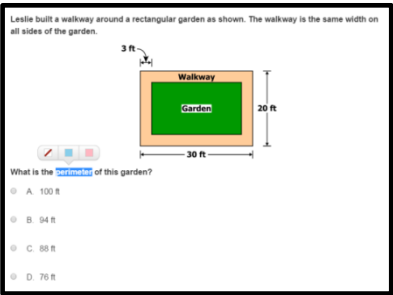

Question	Item Type	Answer Key	Guided Practice Suggestions
9	MC	A 196 sq in.	<p>Students may want to use the <i>Grade 8 Mathematics Formula Sheet</i> when answering this question. In order to access the online formula sheet, students can click on the black <i>Exhibits</i> icon that is located on the far right of the screen.</p>  <p>When the icon is selected, the formula sheet will appear on the screen.</p> <p>Have students practice scrolling to the bottom of the formula sheet and back up to the top. On a desktop or laptop, scroll by using the scroll bar on the right side of the <i>Exhibits</i> window. On a touchscreen device, use a finger to hold down on the white part of the formula sheet to drag it up and down.</p> <p>Have students practice moving the <i>Exhibits</i> window around the screen. To move the <i>Exhibits</i> window on a desktop or laptop, place the pointer on the gray bar across the top of the <i>Exhibits</i> window and drag it to a new location on the screen. To drag the <i>Exhibits</i> window on a touchscreen device, use a finger to hold down on the gray bar across the top of the <i>Exhibits</i> window, and drag the window to a new location.</p> <p>To close the <i>Exhibits</i> window, select the “X” in the upper right corner.</p>

Question	Item Type	Answer Key	Guided Practice Suggestions
10	TEI Fill-in-the-Blank	86.9 cm ²	Remind students that they may want to use the <i>Grade 8 Mathematics Formula Sheet</i> when answering this question. Information for teachers: Equivalent answers will be scored as correct (e.g., 86.900).


Question	Item Type	Answer Key	Guided Practice Suggestions
11	MC	A 3	<p>Have students practice using the Answer Masking accessibility feature with this item. Select the user drop-down menu in the top right corner of the screen and select <i>Enable Answer Masking</i> from the menu.</p>  <p>The answer options on multiple-choice items will now be masked as shown in the screenshot.</p> 

Question	Item Type	Answer Key	Guided Practice Suggestions
11 (Cont.)			<p>Students may show or hide each option by selecting the “eye.”</p>  <p>The two rectangular prisms shown have bases with the same area.</p> <p>Prism M has a height of $2\frac{1}{2}$ in. Prism N has a height of $7\frac{1}{2}$ in.</p> <p>The volume of Prism N can be found by multiplying the volume of Prism M by what scale factor?</p> <p> <input type="radio"/> A. 3 <input checked="" type="checkbox"/> <input type="radio"/> <input type="checkbox"/> <input type="radio"/> <input type="checkbox"/> <input type="radio"/> <input type="checkbox"/> </p> <p>Answer Masking will remain on in each multiple-choice item until it is turned off. To turn off Answer Masking, select the user drop-down menu and select <i>Disable Answer Masking</i>.</p>

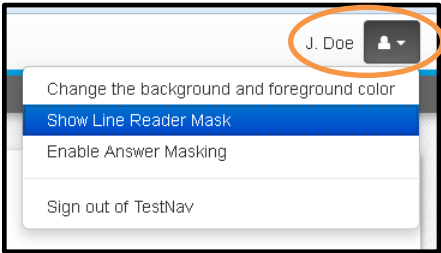
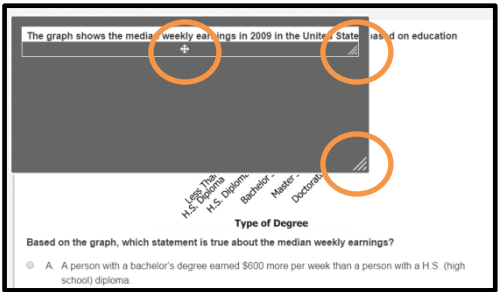
Question	Item Type	Answer Key	Guided Practice Suggestions
12	TEI Hot Spot	These two figures should be selected: The second and fourth figures (from left to right)	<p>This item specifies the number of answers a student must select. If a student tries to select more than the number of answers indicated, a message appears in the top right corner of the screen. This message will remain for approximately five seconds unless the “x” is selected to close the message. Have students try to select an additional answer so that they can see this message appear.</p>  <p>Since this item specifies the number of answers a student must select, it will not be considered “Answered” until two answers have been selected.</p>
13	MC	D 74 cm^2	Students may also want to use the formula sheet on this question. The formula sheet can be accessed by using the <i>Exhibits</i> icon on the far right of the screen.
14	MC	B 0.23 cm^2	Students may also want to use the formula sheet on this question. The formula sheet can be accessed by using the <i>Exhibits</i> icon on the far right of the screen.

Question	Item Type	Answer Key	Guided Practice Suggestions
15	MC	D 76 ft	<p>Have students use the highlighter tool to highlight the key word “perimeter.”</p>  <p>To highlight using a keyboard, place the pointer next to the word “perimeter,” left click, hold down, and drag over the number. Then select the highlighter color.* To remove the highlight, left click, hold down, and drag over the word “perimeter.” Then select the white box on the left with the red line.</p> <p>On a touchscreen, hold down on the number with a finger, and adjust the area to be highlighted with the blue anchors. Then select the highlighter color.* To remove the highlight, hold down on the number with a finger, then select the white box on the left with the red line.</p> <p>On a touch screen, the following message may appear when students highlight text.</p>  <p>In the practice items, selecting one of the options listed will open a new window and direct students to the internet. This will not occur in the actual testing environment; selecting an option will not direct the students to another screen.</p>

Question	Item Type	Answer Key	Guided Practice Suggestions
15 (Cont.)			<p>*Pink and blue are the two highlighter colors available when the foreground and background settings are set to the default (black text on white background). These colors may change when the foreground and background setting is changed. Practice with changing the foreground and background colors will be done on question 31 of this practice item set.</p> <p>Tell students that the highlighter tool will only work on text. It will not work on art (images/pictures).</p> <p>Students may want to use the formula sheet on this question. The formula sheet can be accessed by using the <i>Exhibits</i> icon on the far right of the screen.</p>
16	MC	C $\frac{45}{512}$	

Question	Item Type	Answer Key	Guided Practice Suggestions
17	MC	C $\frac{3}{32}$	<p>This question does not require the use of the ruler tool, but have students practice measuring the diameter of Spinner A using the centimeter ruler. This provides them the opportunity to practice manipulating the tool.</p> <p>There are two ruler tools on the top of the screen (). The icon on the left should be used to access the inch ruler and the icon on the right should be used to access the centimeter ruler. Have students select the appropriate ruler for this question, the centimeter ruler. To move the ruler, select and drag the ruler over to the object to be measured. To rotate the ruler, select and drag an end with the circle. Have students practice moving and rotating the ruler. Selecting the ruler tool icon again will put the ruler tool away; or, select the pointer tool to put it away. Students will use the pointer tool to select the answer after measuring.</p>
18	MC	C 24%	
19	TEI Hot Spot	The student must plot a point on 0.1 (the first tick mark to the right of zero).	<p>This number line model is a type of hot spot technology enhanced item.</p> <p>Tell students that this item will be considered “Answered” once a point is plotted on the number line. The question cannot return into an “Unanswered” state once a point is plotted. If the student wishes to change an answer, he/she should select another point to replace the original answer.</p>

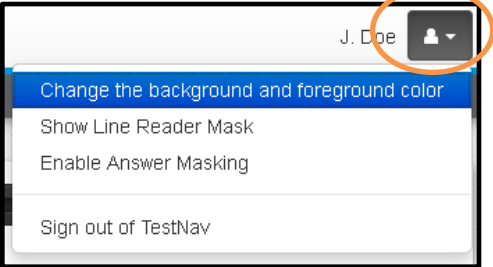
Question	Item Type	Answer Key	Guided Practice Suggestions
20	TEI Fill-in-the-Blank	$\frac{1}{33}$	<p>Make sure students know how to enter the fraction bar, which is the forward slash key (“/”).</p> <p>Information for teachers: A question may specify that the answer must be given in a particular format. This question specifies that the answer must be in simplest form. Make sure you remind students to read the question carefully so they know how to answer the question.</p>

Question	Item Type	Answer Key	Guided Practice Suggestions
21	MC	C A person with a master's degree earned about twice the amount per week as a person with a H.S. (high school) diploma.	<p>Have students practice using the Line Reader Mask accessibility feature with this item. Select the user drop-down menu and <i>Show Line Reader Mask</i> from the menu.</p>  <p>The Line Reader Mask will appear over the item. Have students use the diagonal line areas to practice resizing the area covered by the line reader and the window through which content can be seen. Have students use the cross to move just the window through which content can be seen. Hold down on any part of the gray area and drag the tool to move the entire tool.</p>  <p>To turn off the Line Reader Mask, select the drop-down menu and select <i>Hide Line Reader Mask</i>. If the student does not turn off the Line Reader Mask, it will automatically turn off when the student navigates away from the item.</p>

Question	Item Type	Answer Key	Guided Practice Suggestions
22	MC	D The graph titled, "Water in a Container."	<p>Have students practice zooming in to look at the question on the screen, and then have them zoom out.</p> <p>On a PC or Chromebook, press the CTRL and + keys at the same time to zoom in. Press the CTRL and – keys at the same time to zoom out. Press the CTRL and 0 (zero) keys at the same time to return to the default screen setting.</p> <p>On a Mac, press the COMMAND and + keys at the same time to zoom in. Press the COMMAND and – keys at the same time to zoom out. Press the COMMAND and 0 (zero) keys at the same time to return to the default screen setting.</p> <p>On a touch screen, have students touch two points on the screen and then move their fingers away from each other to zoom in. Touch two points on the screen and then move those fingers toward each other to zoom out.</p> <p>As students are practicing how to zoom in and out, make sure they are doing so within reason. If students zoom in too far, they may not be able to see all of the information necessary to answer the question. If students zoom out too far, they may not be able to clearly see details of the question on the screen. It should also be noted that zooming in and out on the screen may cause the text wrapping to change. Remind students that they should only use this feature when necessary.</p>

Question	Item Type	Answer Key	Guided Practice Suggestions
22 (Cont.)			<p>If students are using a touch screen and the item has a Drawing Interaction tool, they must touch two points located outside the Drawing Interaction window in order to zoom in or out. To drag the screen to the right or to the left, the student must be touching the screen outside the Drawing Interaction window.</p> <p>Before students go to the next question, make sure they return to the default screen.</p>
23	MC	B The table containing ordered pairs (2,10.2) and (5,18.0).	
24	MC	C $-\frac{6}{11}$	
25	TEI Fill-in-the-Blank	-12	Information for teachers: Equivalent answers would be scored as correct (e.g., -12.0).
26	MC	D The graph $a \geq -2\frac{1}{2}$	

Question	Item Type	Answer Key	Guided Practice Suggestions
27	TEI Drag and Drop	The box on the left must contain -30 and the box on the right must contain \geq .	<p>Have students try to place a number into the box on the right. They will not be able to do this. The numbers can only be used in the box on the left. Sometimes a restriction is placed on where a dragger can be placed to limit errors.</p> <p>Have students select the number -30. As they move this number, only the box on the left shades blue, indicating this is the only box that will accept this dragger.</p> <p>Selecting a dragger and moving it to the empty box may cause other draggers to shift location in the answer option area.</p> <p>Have students practice moving draggers back to the gray box. Draggers will go back to their original location when returned to the gray box.</p> <p>This item will not be considered "Answered" until each box has an answer in it.</p>
28	MC	B Additive inverse property	
29	MC	D Identity property of multiplication	
30	MC	B $\{(3,5), (2,5), (3,8)\}$	

Question	Item Type	Answer Key	Guided Practice Suggestions
31	TEI Drag and Drop	Top box: <i>volume of the prism</i> Bottom box: <i>height of the prism</i>	<p>Have students practice using the accessibility feature that allows them to change the background and foreground color. Select the user drop-down menu and <i>Change the background and foreground color</i> from the menu.</p>  <p>There are six different options other than black on white, which is the default setting. Have students select a contrast setting and then the <i>Continue</i> button to enable this feature. This feature could be used by students who would benefit from the use of color contrasting to make text more distinct.</p> <p>This setting will remain enabled until turned off. To turn off this setting, select the user drop-down menu, select <i>Change the background and foreground color</i>, and then select the button next to the default setting. Then select the <i>Continue</i> button.</p> <p>Information for Teachers: This is the end of the practice item set. See the <i>Introduction to TestNav 8: MC/TEI</i> document for information on closing TestNav.</p>