

Directions for Practice Test Administration

Mathematics High School



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Purpose

The *Directions for Practice Test Administration* (DPTA) provides the Test Administrator (TA) of the LEAP Connect practice test with specific instructions for administration of this particular practice test. Each DPTA provides the exact wording of the items to be used by the TA, the materials needed in preparation of the practice test, and guidelines for how to present the items to the student.

Materials

Materials needed for the LEAP Connect Practice Test Administration:

- 1. Directions for Practice Test Administration (DPTA)
- 2. Procedures for Assessing Students Who Are Visually Impaired, Deaf, or Deaf-Blind
- 3. High School Mathematics Practice Test Reference Materials

Directions

- 1. **Know and follow all directions for test administration** provided in the DPTA and *Procedures for Assessing Students Who Are Visually Impaired, Deaf, or Deaf-Blind.*
- Be familiar with and utilize the Text to Speech (TTS) as appropriate. The DRC INSIGHT Assessment System includes TTS that will read aloud the text of directions, items, and answer options and will also read aloud standardized descriptive statements for tables, charts, graphs, and timelines.
 - a. This text is read to all students using a consistent rate of reading and tone of voice. If a student wishes to have any or all of the text repeated, click on the Starting Points button (the circle between the Stop and Play/Pause buttons). Then use the mouse to select the starting point (blue circle) just before the text that needs to be repeated.
 - b. To change the volume or speed of the TTS or turn off the follow-along, select the Options button at the bottom of the screen, then select Audio Settings and adjust as desired.
 - c. If the TTS will not be used, the TA can turn off the volume and the followalong using the Audio Settings. The TA must read the directions, items, answer option text, and graphic descriptions **exactly as written** using a consistent rate of reading and tone of voice.
- 3. Be familiar with and utilize the Alternative Text as appropriate. Alternative Text is bracketed and written in italics. Alternative Text is included for students who are blind or have a visual impairment and require graphics to be described. This Alternative Text includes descriptive statements for tables, charts, graphs, and any graphics necessary for appropriate interaction with the items to be described.

Guidance on Printed Materials

Mathematics Practice Test Reference Materials include required graphics and the answer options for each practice test item. The DPTA will prompt the TA when the required graphics are to be presented to the student. The answer options are included so they can be copied and used as needed (e.g., eye-gaze boards).

Selected-Response Items

Selected-response items are presented to students in the following order:

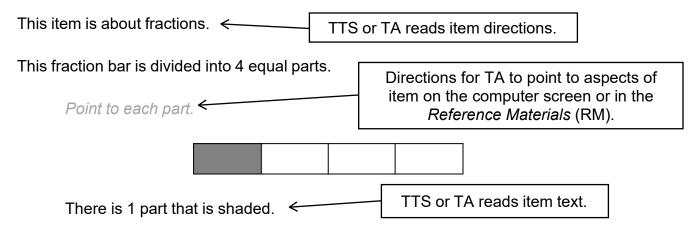
- Item stimulus (which may include an example, picture, graphic, equation, formula, or other illustration)
- Item question
- Answer options (which are indicated by radio buttons and presented vertically)

Students independently select a response from the options. Being mindful that students will respond in a variety of ways (e.g., with words, gestures, eye gaze, communication devices, assistive technology, etc.), TAs can enter responses on behalf of the student. Ensure that Augmentative and Alternative Communication (AAC) and Assistive Technology (AT) used routinely for instruction are available to support the student in communicating responses. Each item will indicate the use of a calculator in the DPTA and DRC INSIGHT. Students with a calculator accommodation may use a calculator for all practice test questions.

Mathematics Selected-Response Item Example

The LEAP Connect practice test items reflect grade-level content presented at varying degrees of complexity. The following item example illustrates a selected-response item and components which support the ways that students with a wide range of learner characteristics are presented with practice test items. The following item example does not reflect ALL content that is assessed in each grade-level content area and does not represent every degree of complexity.

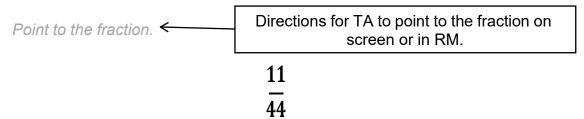
Mathematics Item Example



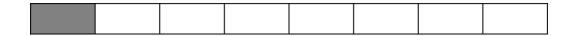
Point to the shaded part.

Directions for TA to point to shaded part on screen or in RM.

This fraction shows that 1 of the 4 parts is shaded.

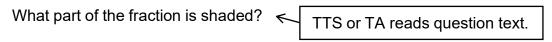


This fraction bar is divided into equal parts.

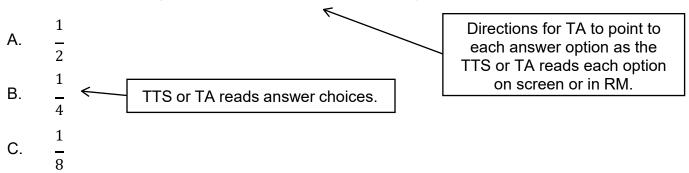


There is 1 part shaded.

Point to the shaded part.



Point to each option as the TTS or TA reads each option.



Procedures for Constructed-Response (CR) Tasks

The CR tasks require students to construct an answer rather than select an answer from multiple-choice options. The TA must enter the student CR score into DRC INSIGHT. The CR task is presented to the student in a standardized, scripted sequence of steps, culminating in a TA's scoring of the student performance according to the Mathematics Scoring Rubric. The Mathematics Scoring Rubrics are included with the appropriate CR tasks in the DPTA and provide scoring standards that must be used to evaluate student responses.

Administering the CR Tasks

- Become familiar with the CR tasks and setup requirements.
- Rehearse administering each task before administering it to a student by reading the script for each task.
- Become familiar with the scoring rubric and directions for scoring the student response.
- Prepare the test setting:
 - Assemble any needed materials (pencils, markers, etc.).
 - o Provide any allowable manipulatives (e.g., counters).
 - Have a calculator available.
 - Provide materials required for student accommodations.
 - Position the student so that they will have the optimal vantage to view and manipulate materials in order to facilitate sustained attention.
 - Eliminate noise and visual distractions that may divert the student's attention.
 - Collect all printed materials that the student will need.
 - Enlarge any stimulus materials, using the enlarge feature on a printer or copier, if needed.
 - Locate the appropriate stimulus material, which is identified by name on the front of each for ease of handling before, during, and after test administration. Cut the stimulus materials apart (if applicable).

Scoring the Mathematics CR Tasks

In order to have consistent and reliable CR scoring, TAs must understand and apply the Mathematics Scoring Rubrics in the same way to every student's response.

Independently score a student's performance on the CR tasks. Being mindful that students will respond in a variety of ways (e.g., with words, gestures, eye gaze, communication devices, assistive technology, etc.), careful and meticulous observation will enable the TA to accurately assign the appropriate score point based on the Mathematics Scoring Rubrics in the DPTA.

Procedures for Entering the Student Score for CR Tasks

Record the student score in the DRC INSIGHT Assessment System. Answer options will be: "The student provided the correct answer." or "The student did not provide the correct answer." After recording the student score, continue to the next item.

Session 1

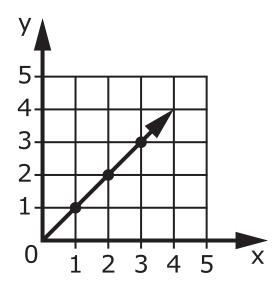
Provide student with Graph 1 from the High School Practice Test Reference Materials.

Item 1

This item is about reading a graph. This graph shows a set of data.

Point to the graph as the TTS or TA reads the graphic description.

[Graphic description: "This is a line graph. The x-axis starts at zero and has five equally spaced marks increasing by ones moving to the right. The y-axis starts with zero and has five equally spaced marks increasing by ones moving upward. The line shows the points on the graph that are part of the data set."]



Which coordinates are part of the data set shown in the graph?

- A. (2, 2)
- B. (1, 4)

Item 2

This item is about graphs.

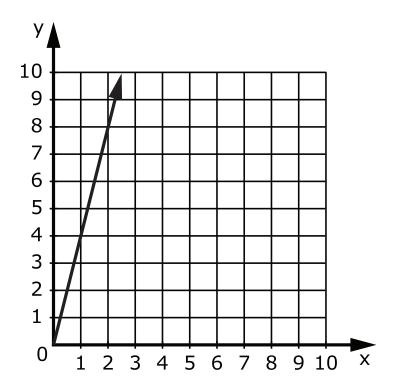
A graph may show the relationship between \mathbf{x} and \mathbf{y} variables.

The rate of change of a graph is the slope of the line. The slope is how steep a line is.

Which graph shows a line that is more steep?

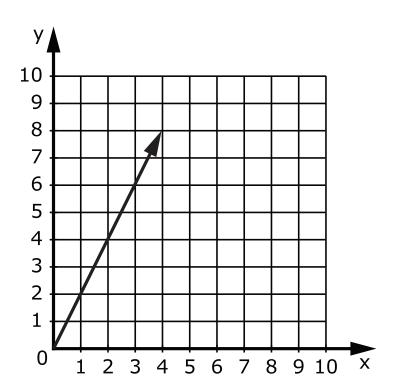
Point to each option as the TTS or TA reads each graphic description.

[Graphic description: "A. This is a line graph. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. There is a line on the graph passing through the points (0, 0) and (1, 4)."]



Item 2, continued

[Graphic description: "B. This is a line graph. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. There is a line on the graph passing through the points (0, 0) and (1, 2)."]



Provide student with Triangle 1 showing triangle QRS from the High School Mathematics Practice Test Reference Materials.

Item 3

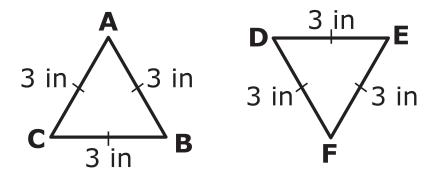
This item is about congruent triangles.

Congruent triangles are the same size and shape.

Triangle **ABC** and triangle **DEF** are congruent.

Point to the triangles as the TTS or TA reads the graphic description.

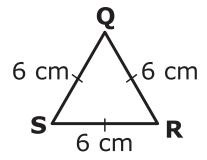
[Graphic description: "These are two triangles. Triangle ABC is an equilateral triangle with each side measuring three inches. Triangle DEF is an equilateral triangle with each side measuring three inches. Triangle ABC and triangle DEF are congruent."]



This is another triangle. This is triangle QRS.

Point to triangle QRS as the TTS or TA reads the graphic description.

[Graphic description: "This is triangle QRS. It is an equilateral triangle with each side measuring six centimeters."]



Item 3, continued

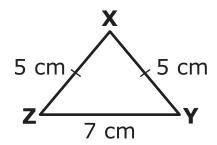
A.

C.

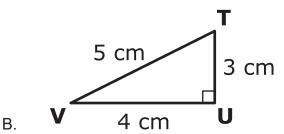
Which triangle is congruent to triangle **QRS**?

Point to the dimensions of each option as the TTS or TA reads each graphic description

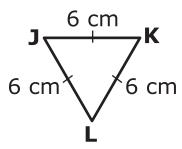
[Graphic description: "A. This is isosceles triangle XYZ. Sides XY and XZ each measure five centimeters and side YZ measures seven centimeters."]



[Graphic description: "B. This is right triangle TUV. Angle U is a right angle. Side TU measures three centimeters. Side UV measures four centimeters and side TV measures five centimeters."]



[Graphic description: "C. This is equilateral triangle JKL. Each side measures six centimeters."]



Provide student with Data Table 1, "Solving Puzzles" and Equation 1 showing $w = p \div 3$ from the High School Mathematics Practice Test Reference Materials.

Item 4

This item is about interpreting a data table.

Kylie solved puzzles. She solved 3 puzzles each week. This data table shows the relationship between the number of weeks and the total number of puzzles Kylie solved.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'Solving Puzzles.' It shows the total number of puzzles, p, solved in different numbers of weeks, w. Six puzzles were solved in two weeks, twelve puzzles were solved in four weeks, fifteen puzzles were solved in five weeks, twenty-one puzzles were solved in unknown weeks, and twenty-seven puzzles were solved in nine weeks."]

Solving Puzzles

Number of Weeks (w)	Number of Puzzles (p)
2	6
4	12
5	15
?	21
9	27

This data table shows the relationship between the number of weeks and the total number of puzzles solved. This equation also shows the relationship between the number of weeks and the total number of puzzles solved.

Point to the equation as the TTS or TA reads the graphic description.

Item 4, continued

[Graphic description: "w equals p divided by three."]



The letter **w** stands for the number of weeks.

Point to the letter w in the equation.

The letter **p** stands for the total number of puzzles solved.

Point to the letter p in the equation.

The number 3 is the number of puzzles solved each week.

Point to the number 3 in the equation.

How many weeks did it take Kylie to solve 21 puzzles?

- A. 4 weeks
- B. 7 weeks
- C. 8 weeks

Provide student with Data Table 2, "Number of Desks" from the High School Mathematics Practice Test Reference Materials.

Item 5

This item is about finding the mean of a set of data.

The mean is the average of the numbers in a set of data.

This data table shows the number of birds Ray saw each day for four days last week.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'Number of Birds Seen.' It shows four days and the number of birds seen each day. Friday seven birds were seen. Saturday five birds were seen. Sunday ten birds were seen. Monday six birds were seen."]

Number of Birds Seen

Day	Number of Birds
Friday	7
Saturday	5
Sunday	10
Monday	6

To find the mean, add all of the values in the list and divide the sum by the number of values.

Item 5, continued

To find the mean number of birds seen, first add all of the values.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Seven plus five plus ten plus six equals twenty-eight."]

$$7 + 5 + 10 + 6 = 28$$

Then divide the sum by the number of values. There are 4 values, so divide by 4.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "twenty-eight divided by four equals seven."]

$$28 \div 4 = 7$$

The mean number of birds seen is 7.

This is another data table.

This data table shows the number of desks in each of 4 classrooms.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'Number of Desks.' It shows four classrooms and the number of desks in each classroom. Classroom W has nine desks. Classroom X has twelve desks. Classroom Y has six desks. Classroom Z has five desks."]

Number of Desks

Classrooms	Number of Desks
W	9
X	12
Υ	6
Z	5

Item 5, continued

What is the mean number of desks in each classroom?

- A. 3 desks
- B. 8 desks
- C. 10 desks

Provide student with Triangle 2 showing triangle **LMN** from the High School Mathematics Practice Test Reference Materials.

Item 6

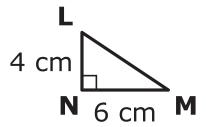
This item is about similar triangles.

Two triangles are similar when the corresponding sides are in the same proportion.

This is triangle **LMN**.

Point to the dimensions of each side as the TTS or TA reads the graphic description.

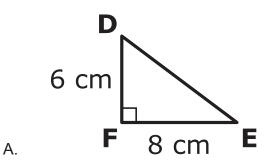
[Graphic description: "This is triangle LMN. Angle N is a right angle. Side LN measures four centimeters. Side MN measures six centimeters."]



Which triangle is similar to triangle **LMN**?

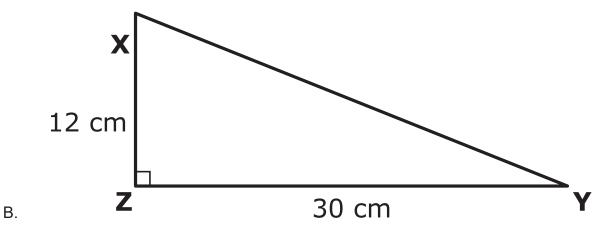
Point to the dimensions of each option as the TTS or TA reads each graphic description.

[Graphic description: "A. This is triangle DEF. Angle F is a right angle. Side DF measures six centimeters. Side EF measures eight centimeters."]

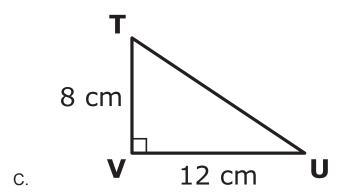


Item 6, continued

[Graphic description: "B. This is triangle XYZ. Angle Z is a right angle. Side XZ measures twelve centimeters. Side YZ measures thirty centimeters."]



[Graphic description: "C. This is triangle TUV. Angle V is a right angle. Side TV measures eight centimeters. Side UV measures twelve centimeters."]



Provide student with Data Table 3, 'Total Hours Exercised' and Equation 2 showing 2d = h from the High School Mathematics Practice Test Reference Materials.

Item 7

This item is about interpreting a data table.

Carl exercises at the fitness center 2 hours each day. This data table shows the number of hours he exercises after different numbers of days.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'Total Hours Exercised'. It shows the total number of days, d, exercised and the number of hours, h, exercised during those days. In two days, there are four hours exercised. In four days, there are eight hours exercised. In an unknown number of days, there are sixteen hours exercised. In ten days, there are twenty hours exercised."]

Total Hours Exercised

Number of Days (d)	Number of Hours (h)
2	4
4	8
?	16
10	20

This data table shows the relationship between the number of days and the total number of hours exercised. This equation also shows the relationship between the number of days and the total number of hours exercised.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "two d equals h."]

2d = h

Item 7, continued

The number 2 is the number of hours exercised each day.

Point to the number 2 in the equation.

The letter **d** stands for the number of days.

Point to the letter d in the equation.

The letter **h** stands for the total number of hours exercised.

Point to the letter h in the equation.

How many days did it take Carl to exercise 16 hours?

- A. 8 days
- B. 7 days
- C. 6 days

Provide student with Equation 3 showing 12 = 8 + w from the High School Practice Test Reference Materials.

Item 8

This item is about solving equations.

This is the equation.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Twelve equals eight plus w."]

12 = 8 + w

To solve for w, subtract 8 from both sides of the equation.

What value for w solves the equation?

- A. 20
- B. 4
- C. 2

Provide student with Graph 2 from the High School Mathematics Practice Test Reference Materials.

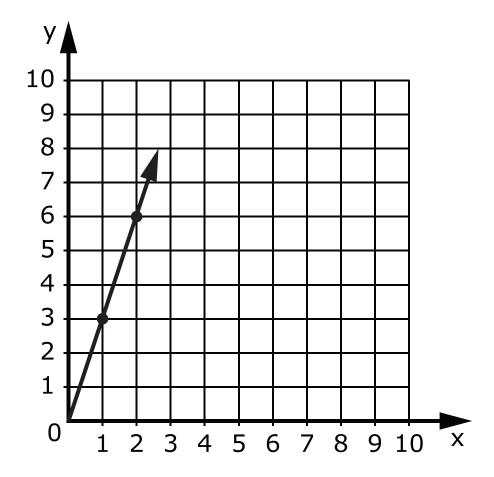
Item 9

This item is about reading a graph.

This graph shows a set of data.

Point to the graph as the TTS or TA reads the graphic description.

[Graphic description: "This is a line graph. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts with zero and has ten equally spaced marks increasing by ones moving upward. The line shows the points on the graph that are part of the data set."]



Item 9, continued

Which coordinates are part of the data set?

- A. (3,1)
- B. (1,3)

Provide student with Graph 3 from the High School Mathematics Practice Test Reference Materials.

Item 10

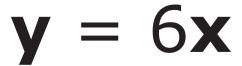
This item is about solving equations using a graph.

A line on a graph can be used to find a value that solves an equation.

This equation is shown on the graph.

Point to the equation as the TTS or TA reads the graphic description.

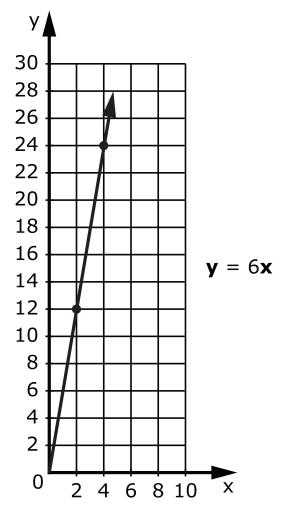
[Graphic description: "y equals six x."]



Point to the graph as the TTS or TA reads the graphic description.

[Graphic description: "This is a line graph. The x-axis starts at zero and has five equally spaced marks increasing by twos moving to the right. The y-axis starts at zero and has fifteen equally spaced marks increasing by twos moving upward. The equation for the line on the graph is y equals six x."]

Item 10, continued



What is the solution to the equation y = 6x when x equals 4?

- A. 10
- B. 12
- C. 24

Provide student with Equation 4 showing 15 = 2h + 7 from the High School Practice Test Reference Materials.

Item 11

This item is about solving equations.

This is an equation.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Twelve equals three g plus 6."]

$$12 = 3g + 6$$

To solve for \mathbf{g} , the first step is to subtract 6 from both sides of the equation to get [Graphic description: "six equals 3g."] $\mathbf{6} = 3\mathbf{g}$.

Next, divide both sides of the equation by 3 to get the answer [Graphic description: "g equals two."] g = 2.

Here is another equation.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Fifteen equals two h plus seven."]

$$15 = 2h + 7$$

What is the value of **h**?

- A. 4
- B. 8
- C. 9

Provide student with Data Table 4, "Don's Fruit Baskets" from the High School Mathematics Practice Test Reference Materials.

Item 12

This item is about a data table of values and an equation.

Clark made flower arrangements that always had 2 more red roses than white roses. This data table shows the number of red roses and white roses Clark used for his arrangements.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'Clark's Flower Arrangements.' It shows the number of white roses and number of red roses, r. One white rose was in an arrangement with three red roses. Two white roses were in an arrangement with four red roses. Three white roses were in an arrangement with five red roses. Four white roses were in an arrangement with six red roses."]

Clark's Flower Arrangements

Number of	Number of
White Roses	Red Roses (r)
1	3
2	4
3	5
4	6

An equation can be written to find how many red roses were in an arrangement with 3 white roses.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Three plus two equals r."]

$$3 + 2 = r$$

Item 12, continued

The number 3 is the number of white roses.

Point to the number 3 in the equation.

The number 2 is how many more red roses than white roses were in the arrangement.

Point to the number 2 in the equation.

The letter **r** stands for the number of red roses.

This is another problem about a data table of values and an equation.

Don made fruit baskets that always had 4 more pears than bananas. This data table shows the numbers of pears and bananas Don used for some of his baskets.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'Don's Fruit Baskets.' It shows the number of bananas and the number of pears, p. One banana was in a basket with five pears. Two bananas were in a basket with six pears. Three bananas were in a basket with seven pears. Four bananas were in a basket with eight pears."]

Don's Fruit Baskets

Number of Bananas	Number of Pears (p)
1	5
2	6
3	7
4	8

Item 12, continued

Which equation can be used to find \mathbf{p} , the number of pears in the fruit basket with 3 bananas?

Point to each option as the TTS or TA reads each graphic description.

[Graphic description: "A. Seven plus three equals p."]

A.
$$7 + 3 = \mathbf{p}$$

[Graphic description: "B. Seven minus three equals p."]

$$_{B.}$$
 7 - 3 = **p**

[Graphic description: "C. Three plus four equals p."]

$$_{C.}$$
 3 + 4 = **p**

Item 13

This item is about solving equations.

This is an equation.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Eleven equals five plus m."]

$$11 = 5 + m$$

To solve for **m**, subtract 5 from both sides of the equation.

What is the value of m?

- A. 6
- B. 15
- C. 55

Item 14

Rosie repairs cars. She repairs 3 cars each day. The equation shows the number of cars repaired, **y**, after **x** days.

[Graphic description: "y equals three x."]



The letter **y** stands for the total number of cars repaired.

Point to the letter y in the equation.

The number 3 is how many cars Rosie repairs each day.

Point to the number 3 in the equation.

The letter **x** stands for the number of days.

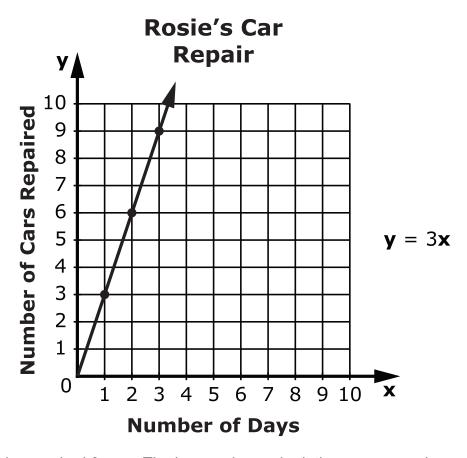
Point to the letter x in the equation.

This graph shows the relationship between the total number of cars repaired and the number of days Rosie worked.

Point to the graph as the TTS or TA reads the graphic description.

Item 14, continued

[Graphic description: "This is a line graph titled 'Rosie's Car Repair.' The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. It is labeled 'Number of Days.' The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. It is labeled Number of Cars Repaired.' The equation for the line on the graph is y equals three x."]



Each day, she repaired 3 cars. The longer she worked, the more cars she repaired.

After 1 day, she repaired 3 cars.

Point to the coordinates (1, 3).

After 2 days, she repaired 6 cars.

Point to the coordinates (2, 6).

After 3 days, she repaired 9 cars.

Point to the coordinates (3, 9).

Item 14, continued

These points are plotted on the graph, and a line is drawn through the points.

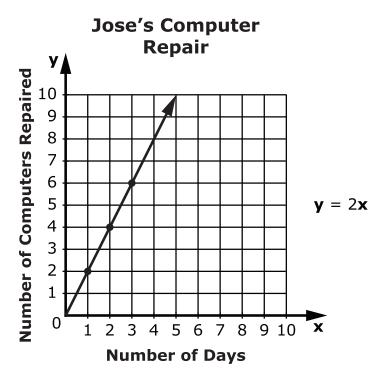
Point to the sloping trend line on the graph.

This is another problem about a graph. Jose repaired computers. He repaired 2 computers each day.

Which graph shows how many computers Jose repaired after different numbers of days?

Point to each option as the TTS or TA reads each graphic description.

[Graphic description: "A. This is a line graph titled 'Jose's Computer Repair.' The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. It is labeled 'Number of Days'. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. It is labeled 'Number of Computers Repaired'. The equation for the line on the graph is y equals two x."]

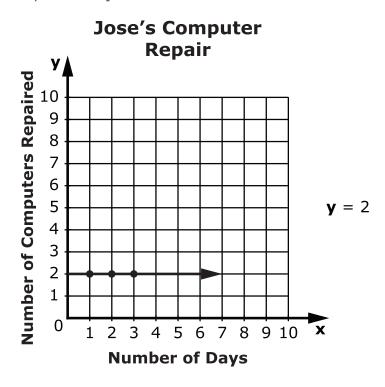


A.

Item 14, continued

B.

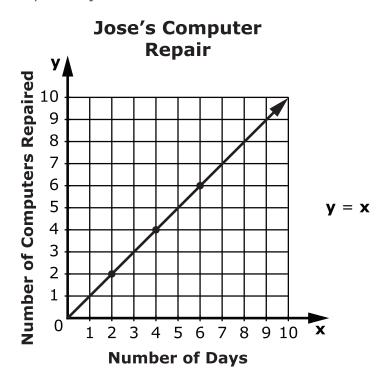
[Graphic description: "B. This is a line graph titled 'Jose's Computer Repair.' The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. It is labeled 'Number of Days'. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. It is labeled 'Number of Computers Repaired'. The equation for the line on the graph is y equals two."]



Item 14, continued

C.

[Graphic description: "C. This is a line graph titled' Jose's Computer Repair.' The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. It is labeled 'Number of Days'. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. It is labeled 'Number of Computers Repaired'. The equation for the line on the graph is y equals x."]



Item 15

This item is about using an equation to solve a word problem.

Tina collects marbles. She has 1 jar with 10 marbles and 2 jars with 4 marbles each. Tina wrote this equation to find out how many marbles, **m**, she has in all.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "m equals ten plus the product of two times four."]

$$\mathbf{m} = 10 + (2 \times 4)$$

What is the total number of marbles, **m**, Tina has in all?

- A. 16 marbles
- B. 18 marbles
- C. 24 marbles

Provide student with Data Set 1, "Number of Cars" from the High School Mathematics Practice Test Reference Materials.

Item 16

This item is about finding the mode of a set of data.

The mode is the value that appears most often in a set of data.

This set of data lists the number of windows in each of 5 classrooms.

Point to the set of data as the TTS or TA reads the graphic description.

[Graphic description: "Number of Windows: three, five, six, nine."]

Number of Windows

3, 5, 5, 6, 9

The number 5 appears most often.

Point to the 5 in the set of data.

The mode of the data set is 5 windows.

This is another set of data.

This set of data lists the number of cars that drove past Myra's house for five hours.

Point to the set of data as the TTS or TA reads the graphic description.

[Graphic description: "Number of Cars: three, four, four, five, eight."]

Number of Cars

3, 4, 4, 5, 8

Item 16, continued

What is the mode of the data set of cars Myra saw drive past her house?

- A. 3 cars
- B. 4 cars
- C. 8 cars

Provide student with Formula 1 showing the area of a rectangle from the High School Mathematics Practice Test Reference Materials.

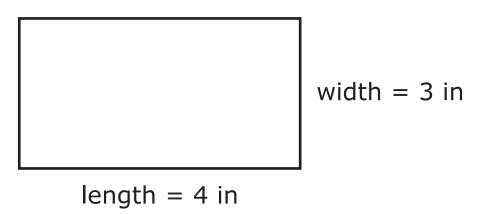
Item 17

This item is about solving for the area of a rectangle.

This is a rectangle.

Point to the rectangle as the TTS or TA reads the graphic description.

[Graphic description: "This is a rectangle. The length is 4 inches. The width is 3 inches."]



To solve for the area of the rectangle, use the formula for area.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Area equals length times width."]

Area = length
$$\times$$
 width
Area = 4×3

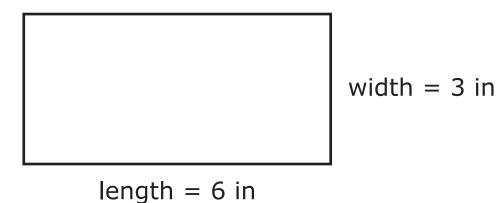
The area of the rectangle can be found by multiplying [Graphic description: "four times three"] **4** × **3**. The area of the rectangle is 12 square inches.

Item 17, continued

Here is another rectangle.

Point to the rectangle as the TTS or TA reads the graphic description.

[Graphic description: "This is a rectangle. The length is six inches and the width is three inches."]



Use the formula to calculate the area of the rectangle.

Point to the formula as the TTS or TA reads the graphic description.

[Graphic description: "Area equals length times width. Area equals blank times blank."]

Area = length
$$\times$$
 width
Area = \times

What is the area of the rectangle?

- A. 18 square inches
- B. 9 square inches

Item 18

This item is about solving equations.

This is an equation.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Thirteen equals two d plus five."]

$$13 = 2d + 5$$

To solve for d, the first step is to subtract 5 from both sides of the equation to get [Graphic description: "eight equals two d"] 8 = 2d.

Next, divide both sides of the equation by 2 to get the answer, [Graphic description: "d equals four"] d = 4.

Here is another equation.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Eighteen equals four d minus six."]

$$18 = 4d - 6$$

What is the value of **d**?

- A. 2
- B. 6
- C. 10

Provide student with Triangle 3 showing right triangle XYZ from the High School Mathematics Practice Test Reference Materials.

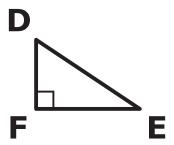
Item 19

This item is about parts of a right triangle.

The hypotenuse of a right triangle is the side opposite the right angle.

Angle **F** is the right angle in triangle **DEF**.

Point to angle F.



Side **DE** is opposite the right angle.

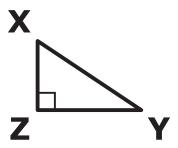
Point to side DE.

Side **DE** is the hypotenuse of triangle **DEF**.

This is another triangle. This is triangle XYZ.

Angle **Z** is the right angle in triangle **XYZ**.

Point to angle Z.

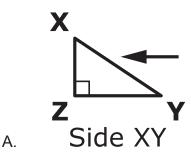


Item 19, continued

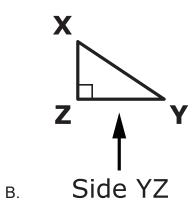
Which side is the hypotenuse of triangle XYZ?

Point to each option as the TTS or TA reads each graphic description.

[Graphic description: "A. This is a picture of a right triangle. There is an arrow pointing to side XY. It is labeled side XY"]



[Graphic description: "B. This is a picture of a right triangle. There is an arrow pointing to side YZ. It is labeled side YZ."]



Item 20

This item is about converting measurements.

Chris made a batch of fruit punch that needed 3 gallons of pineapple juice. Chris used this equation to find out how many quarts of pineapple juice she needed.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "One gallon (g) equals four quarts (q)."]

1 gallon
$$(\mathbf{g}) = 4$$
 quarts (\mathbf{q})

This equation shows how to find the total number of quarts in 3 gallons.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "g times four equals q."]

$$\mathbf{g} \times 4 = \mathbf{q}$$

The letter g stands for the number of gallons.

Point to the letter g in the equation.

The number 4 is the number of quarts in a gallon.

Point to the number 4 in the equation.

The letter q stands for the total number of quarts.

Point to the letter q in the equation.

Item 20, continued

How many quarts of pineapple juice were needed for Chris's fruit punch?

- A. 1 quart
- B. 7 quarts
- C. 12 quarts

Session 2

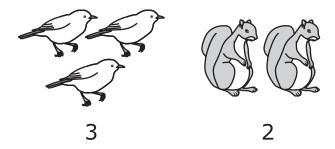
Provide student with Picture 1 showing pelicans and dolphins from the High School Mathematics Practice Test Reference Materials.

Item 21

This item is about writing an equation.

Bobbie saw some animals at the park. She saw 3 birds and 2 squirrels.

Point to the picture.



An equation can be written to find **z**, the total number of animals Bobbie saw.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Three plus two equals z."]

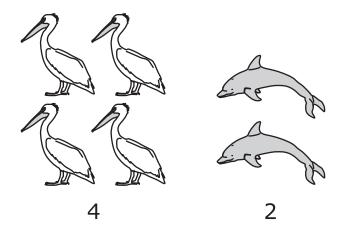
$$3 + 2 = z$$

This is another problem about writing an equation.

Item 21, continued

Niki saw some animals at the beach. This figure shows the animals that she saw.

Point to the picture.



Niki saw 4 pelicans and 2 dolphins.

The letter **m** stands for the total number of animals Niki saw.

Point to the letter m in the options.

Which equation shows the total number of animals Niki saw?

Point to each option as the TTS or TA reads each graphic description.

[Graphic description: "A. Four plus two equals m."]

A.
$$4 + 2 = m$$

[Graphic description: "B. Four plus four equals m."]

B.
$$4 + 4 = m$$

Item 22

This item is about points plotted on a line graph.

This is the ordered pair (6, 2).

Point to the ordered pair as the TTS or TA reads the graphic description.

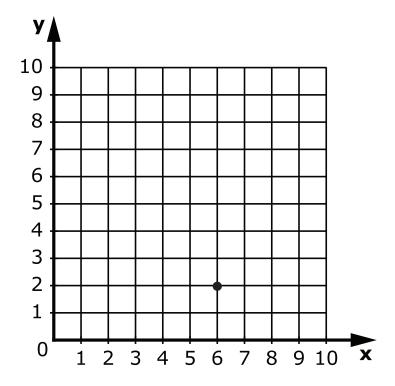
[Graphic description: "six, two"]

(6, 2)

This is a coordinate grid showing the point (6, 2).

Point to the coordinate grid as the TTS or TA reads the graphic description.

[Graphic description: "This is a grid. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. A point is plotted at six, two."]



Item 22, continued

A.

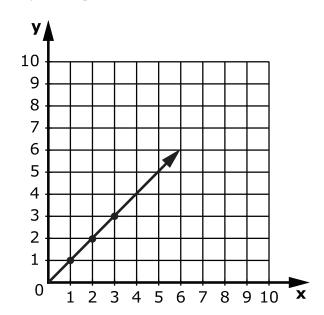
To plot the ordered pair (6, 2) on the coordinate grid, start at the origin, (0, 0). Then, move 6 units to the right along the x-axis. From there, move up 2 units.

Point to the point at (6, 2) on the graph.

Which graph shows a line drawn through the points (1, 2), (2, 4), and (3, 6)?

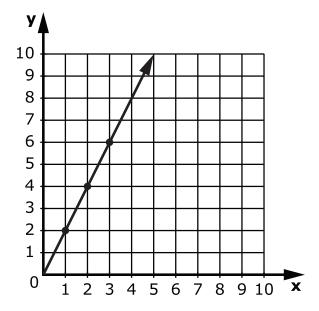
Point to each option as the TTS or TA reads each graphic description.

[Graphic description: "A. This is a line graph. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward."]

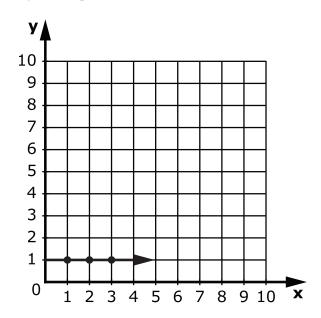


Item 22, continued

[Graphic description: "B. This is a line graph. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward."]



[Graphic description: "C. This is a line graph. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward."]



B.

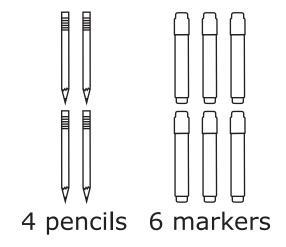
Provide student with Picture 2 showing tomato and bean plants from the High School Mathematics Practice Test Reference Materials.

Item 23

This item is about writing an equation.

Ben has school supplies in his backpack. He has 4 pencils and 6 markers.

Point to the picture.



An equation can be written to find \mathbf{s} , the total number of school supplies Ben has in his backpack.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Four plus six equals s."]

$$4 + 6 = s$$

This is another problem about writing an equation.

Item 23, continued

Ryan planted some vegetable seeds.

Point to the picture.



Ryan grew 3 tomato plants and 5 bean plants.

The letter **v** stands for the total number of vegetables Ryan grew.

Point to the letter **v** in the options.

Which equation shows the total number of vegetables Ryan grew?

Point to each option as the TTS or TA reads each graphic description.

[Graphic description: "A. Three plus three equals v."]

A.
$$3 + 3 = \mathbf{v}$$

[Graphic description: "B. Three plus five equals v."]

$$_{\rm B}$$
 3 + 5 = $\bf v$

Provide student with Data Table 5, "Data Table S" from the High School Mathematics Practice Test Reference Materials.

Item 24

This item is about using a data table of values to make a graph.

This data table, "Data Table R", shows the relationship between x and y.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled, 'Data Table R'. The left column is labeled 'x' and the right column is labeled 'y'. When x is one, y is two. When x is two, y is four. When x is three, y is six. When x is four, y is eight."]

Data Table R

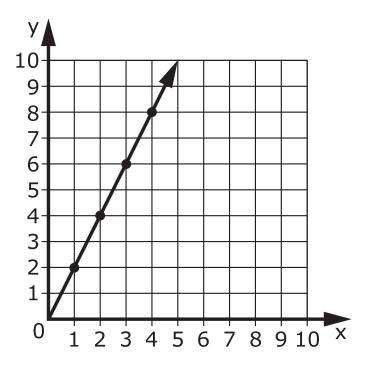
X	У
1	2
2	4
3	6
4	8

Each of the points in the data table are plotted to make a graph. This graph shows the points in the data table on a graph.

Point to the graph as the TTS or TA reads the graphic description.

[Graphic description: "This is a line graph. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. The following points are on the graph: one-two, two-four, three-six, and four-eight. There is a line going through all of the points."]

Item 24, continued



Here is another data table.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled, 'Data Table S'. The left column is labeled 'x' and the right column is labeled 'y'. When x is one, y is one. When x is two, y is two. When x is three, y is three. When x is four, y is four."]

Data Table S

X	y
1	1
2	2
3	3
4	4

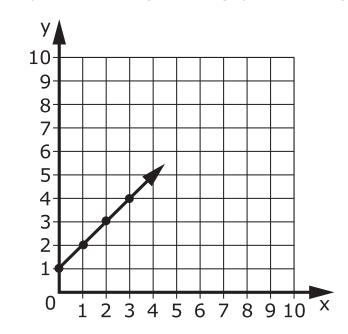
Item 24, continued

Each of the points in the data table are plotted to make a graph.

Which graph represents the information in the data table?

Point to each option as the TTS or TA reads each graphic description.

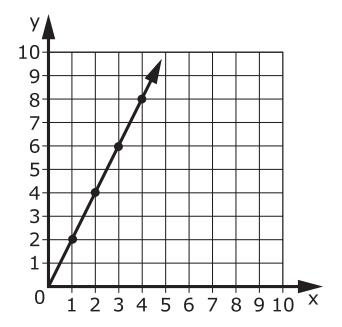
[Graphic description: "A. This is a line graph. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. The line goes through points on the graph."]



Α.

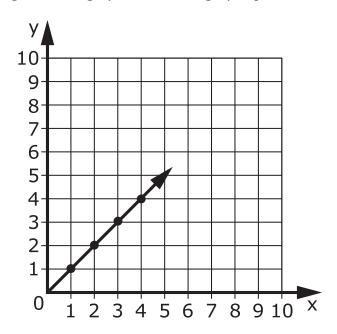
Item 24, continued

[Graphic description: "B. This is a line graph. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. The line goes through points on the graph."]



B.

[Graphic description: "C. This is a line graph. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has ten equally spaced marks moving upward. The line goes through points on the graph."]



C.

Item 25

This item is about solving equations.

Ariel and Janice are planting flowers. Together they planted 12 flowers. Ariel planted 8 flowers.

This equation can be used to find the number of flowers Janice planted.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Twelve equals eight plus j."]

$$12 = 8 + j$$

To solve for \mathbf{j} , subtract 8 from both sides of the equation to get [Graphic description: " \mathbf{j} equals four"] $\mathbf{j} = \mathbf{4}$.

Janice planted 4 flowers.

This is another equation to solve.

Bobby and Joey are walking dogs. Together they walked 9 dogs. Joey walked 5 dogs.

This equation can be used to find the number of dogs Bobby walked.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Nine equals five plus w."]

$$9 = 5 + w$$

Item 25, continued

How many dogs did Bobby walk?

- A. 4
- B. 6
- C. 14

Item 26

This item is about solving equations.

There were 8 snails in the sand. Then 2 crawled away.

This equation can be used to find how many snails, **s**, were left in the sand.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Eight equals 2 plus s."]

$$8 = 2 + s$$

To solve for \mathbf{s} , subtract 2 from both sides of the equation to get [Graphic description: "six equals \mathbf{s} "] $\mathbf{6} = \mathbf{s}$.

There are 6 snails left in the sand.

This is another problem about solving equations.

Sam checked out 9 books from the library. The next day he returned 3 of the books.

This equation can be used to find the number of books, **z**, Sam still needs to return to the library.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Nine equals three plus z."]

$$9 = 3 + z$$

Item 26, continued

How many books does Sam still need to return?

- A. 12
- B. 6
- C. 3

Item 27

This item is about a problem that can be modeled by an equation.

Liz had \$55. She bought a plant that cost \$45 and some seed packs that cost \$2 each.

Which equation can be used to find \mathbf{p} , the number of seed packs Liz bought, if she spent all of her money?

Point to each option as the TTS or TA reads each graphic description.

[Graphic description: "A. Two p plus fifty-five equals ten."]

$$_{A}$$
 2**p** + 55 = 10

[Graphic description: "B. Forty-five plus two p equals fifty-five."]

$$_{\rm B.}$$
 45 + 2**p** = 55

[Graphic description: "C. Forty-five p plus two equals fifty-five."]

$$c. 45\mathbf{p} + 2 = 55$$

Provide student with Data Set 2, "Games Won Last Month" from the High School Mathematics Practice Test Reference Materials.

Item 28

This item is about finding the mean of a set of data.

The mean is the average of the numbers in a set of data.

This set of data shows how many games each student won last month.

Point to the set of data as the TTS or TA reads the graphic description.

[Graphic description: "Games Won Last Month: three, four, six, seven."]

Games Won Last Month

3, 4, 6, 7

To find the mean number of games won by the students last month, first add all of the values. Then divide the sum by the number of values.

What is the mean number of games won by the students last month?

- A. 3
- B. 4
- C. 5

Provide student with Graph 4, "Distance Biked" from the High School Mathematics Practice Test Reference Materials.

Item 29

This item is about using a data table of values to make a graph.

Merle went hiking. This data table shows the number of hours he hiked and the number of miles he hiked.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled, 'Distance Hiked'. It shows the Number of Hours and the Number of Miles. In one hour, two miles were hiked. In two hours, four miles were hiked. In three hours, six miles were hiked."]

Distance Hiked

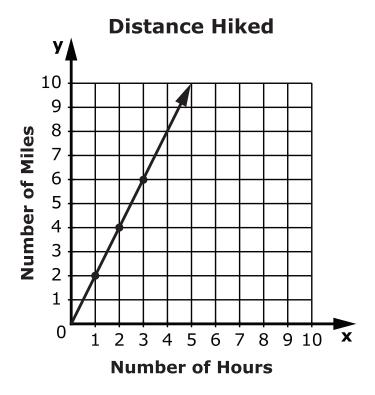
Number of Hours	Number of Miles
1	2
2	4
3	6

Each of the points in the data table are plotted to make a graph. The graph shows the number of hours Merle hiked and the number of miles he hiked.

Point to the graph as the TTS or TA reads the graphic description.

[Graphic description: "This is a line graph titled 'Distance Hiked'. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. It is labeled Number of Hours. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. It is labeled Number of Miles."]

Item 29, continued



In the data table, in 1 hour he hiked 2 miles.

Point to the first row in the data table.

On the graph, the first data point is found at the coordinates (1, 2).

Point to the coordinates (1, 2) on the graph.

This is another problem about using a data table to make a graph.

Holly went biking. This data table shows the number of hours she biked and the number of miles she biked.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'Distance Biked.' It shows the Number of Hours and the Number of Miles. In one hour, three miles were biked. In two hours, six miles were biked. In three hours, nine miles were biked."]

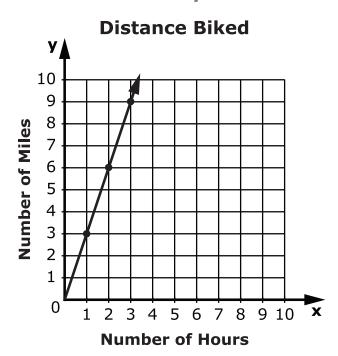
Distance Biked

Number of	Number of
Hours	Miles
1	3
2	6
3	9

Which graph shows the same information as the data table?

Point to each option as the TTS or TA reads each graphic description.

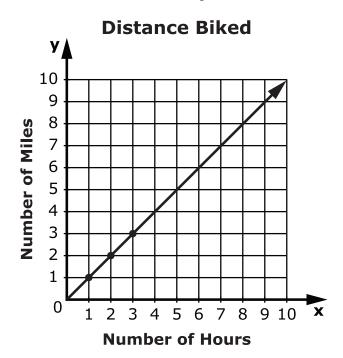
[Graphic description: "A. This is a line graph titled, 'Distance Biked.' The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. It is labeled Number of Hours. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. It is labeled Number of Miles."]



A.

Item 29, continued

[Graphic description: "B. This is a line graph titled, 'Distance Biked.' The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. It is labeled Number of Hours. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. It is labeled Number of Miles."]

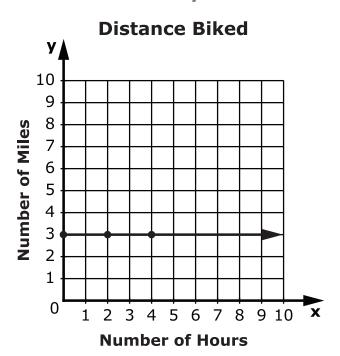


B.

Item 29, continued

C.

[Graphic description: "C. This is a line graph titled, 'Distance Biked.' The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. It is labeled Number of Hours. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. It is labeled Number of Miles."]



Provide student with Graph 5, "Money Spent at the Arcade" from the High School Mathematics Practice Test Reference Materials.

Item 30

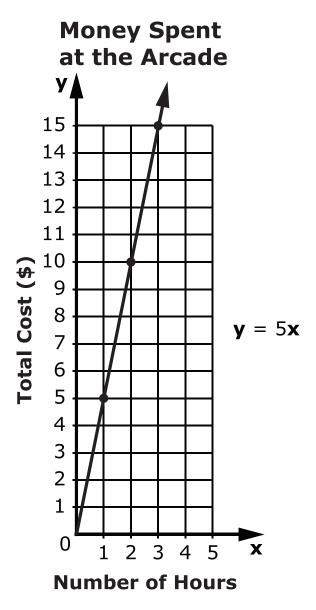
This item is about a situation that can be modeled by a graph.

Ted went to the arcade. Each hour he was there he spent \$5.

This graph shows the relationship between the total cost and the number of hours Ted spent at the arcade.

Point to the graph as the TTS or TA reads the graphic description.

[Graphic description: "This is a line graph titled 'Money Spent at the Arcade.' The x-axis starts at zero and has five equally spaced marks increasing by ones moving to the right. It is labeled Number of Hours. The y-axis starts at zero and has fifteen equally spaced marks increasing by ones moving upward. It is labeled Total Cost in Dollars. The equation for the line on the graph is y equals five x."]



Each hour at the arcade costs Ted \$5. The more hours Ted plays, the more it costs.

For 1 hour, it costs \$5.

Point to (1, 5) on the graph.

For 2 hours, it costs \$10.

Point to (2, 10) on the graph.

Item 30, continued

For 3 hours, it costs \$15.

Point to (3, 15) on the graph.

These amounts are plotted on the graph, and a line is drawn through the points.

Point to the sloping trend line on the graph.

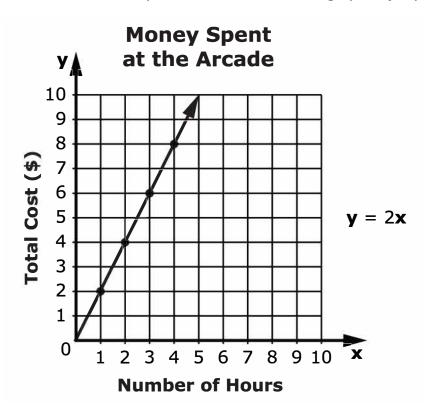
This is another problem that can be modeled with an equation and a graph.

Rick went to the arcade.

This graph shows the relationship between the total cost and the number of hours Rick spent at the arcade.

Point to the graph as the TTS or TA reads the graphic description.

[Graphic description: "This is a line graph titled 'Money Spent at the Arcade'. The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. It is labeled Number of Hours. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. It is labeled Total Cost in Dollars. The equation for the line on the graph is y equals two x."]



Item 30, continued

According to the graph, how much money does Rick spend each hour he plays at the arcade?

- A. \$1
- B. \$2
- C. \$8

Provide student with Data Table 6, "Art Boxes" from the High School Mathematics Practice Test Reference Materials.

Item 31

This item is about a data table of values and an equation.

Jessica planted a garden. Each row of vegetables had 3 more carrots than peas. This data table shows the numbers of carrots and peas Jessica planted.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'Jessica's Vegetable Garden.' It shows numbers of peas and numbers of carrots, c, in rows of Jessica's garden. One pea plant was in a row with four carrots. Two pea plants were in row with five carrots. Three pea plants were in a row with six carrots. Four pea plants were in a row with seven carrots."]

Jessica's Vegetable Garden

Number of Pea Plants	Number of Carrots (c)
1	4
2	5
3	6
4	7

An equation can be written to find how many carrots were in a row with 4 pea plants.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "Four plus three equals c."]

$$4 + 3 = c$$

Item 31, continued

The number 4 is the number of pea plants.

Point to the number 4 in the equation.

The number 3 is how many more carrots than pea plants were in each row of the garden.

Point to the number 3 in the equation.

The letter **c** stands for the number of carrots.

Point to the letter c in the equation.

This is another problem about a data table of values and an equation.

Francis put together art boxes. Each box always had 2 more brushes than jars. This data table shows the numbers of brushes and jars in different boxes.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'Art Boxes.' It shows numbers of jars and numbers of brushes, b. Two jars are in a box with four brushes. Three jars are in a box with an unknown number of brushes. Four jars are in a box with six brushes. Five jars are in a box with seven brushes."]

Art Boxes

Number of Jars	Number of Brushes (b)
2	4
3	?
4	6
5	7

Item 31, continued

Which equation can be used to find **b**, the number of brushes in an art box with 3 jars?

Point to each option as the TTS or TA reads each graphic description.

[Graphic description: "A. Five plus three equals b."]

A.
$$5 + 3 = b$$

[Graphic description: "B. Five minus three equals b."]

_{B.}
$$5 - 3 = b$$

[Graphic description: "C. Three plus two equals b."]

c.
$$3 + 2 = b$$

Item 32

This item is about converting measurements.

A restaurant had 3 gallons of ketchup. The restaurant owner fills 1-pint bottles of ketchup to place on each table.

The restaurant owner used this conversion table to find how many 1-pint bottles he could fill.

Point to the conversion table as the TTS or TA reads the graphic description.

[Graphic description: "One gallon equals four quarts. One quart equals two pints."]

How many 1-pint bottles could the restaurant owner fill with 3 gallons of ketchup?

- A. 6 bottles
- B. 12 bottles
- C. 24 bottles

Provide student with Graph 6, "Tree Heights," from the High School Mathematics Practice Test Reference Materials.

Item 33

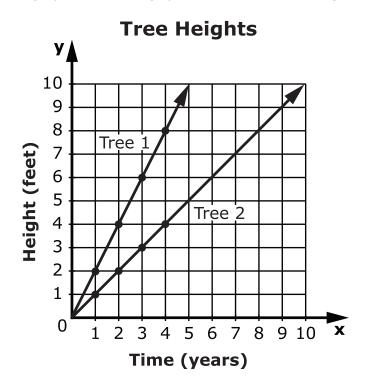
This item is about reading a graph.

Curtis planted 2 trees. He recorded the heights of the trees over several years.

The heights are shown in the graph.

Point to the graph as the TTS or TA reads the graphic description.

[Graphic description: "This is a line graph titled 'Tree Heights.' The x-axis starts at zero and has ten equally spaced marks increasing by ones moving to the right. It is labeled Time in years. The y-axis starts at zero and has ten equally spaced marks increasing by ones moving upward. It is labeled Height in feet."]



Item 33, continued

Which tree is growing faster as shown by a line that is more steep?

- A. Tree 1
- B. Tree 2

Provide student with Graph 7 from the High School Mathematics Practice Test Reference Materials.

Item 34

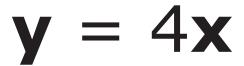
This item is about solving equations using a graph.

A line on a graph can be used to find a value that solves an equation.

This equation is shown on the graph.

Point to the equation as the TTS or TA reads the graphic description.

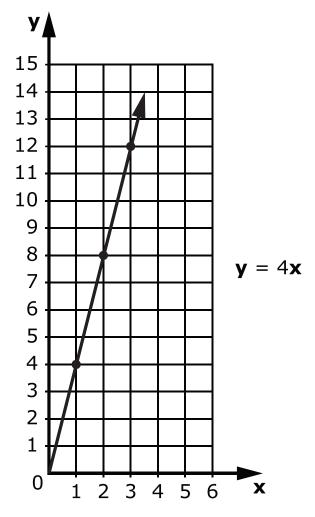
[Graphic description: "y equals four x."]



Point to the graph as the TTS or TA reads the graphic description.

[Graphic description: "This is a line graph. The x-axis starts at zero and has six equally spaced marks increasing by ones moving to the right. The y-axis starts at zero and has fifteen equally spaced marks increasing by ones moving upward. The equation for the line on the graph is y equals four x."]

Item 34, continued



What is the solution to the equation y = 4x when x equals 2?

- A. 2
- B. 4
- C. 8

Provide student with Data Table 7, "School Store Sales" from the High School Mathematics Practice Test Reference Materials.

Item 35

This item is about a data table of values and an equation.

The school store sells notebooks and pens.

This data table shows the number of notebooks and pens sold.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'School Store Sales.' It shows number of notebooks, n, and number of pens, p. The store sold three notebooks when six pens are sold. The store sold four notebooks when seven pens are sold. The store sold five notebooks when eight pens are sold. There is an unknown number of notebooks sold when nine pens are sold."]

School Store Sales

Number of Notebooks (n)	Number of Pens (p)
3	6
4	7
5	8
?	9

The data in the data table shows that the school store always sold 3 more pens than notebooks. The information in the data table can be used to write an equation.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "n plus three equals p."]

$$n + 3 = p$$

Item 35, continued

The letter **n** stands for the number of notebooks.

Point to the letter n in the equation.

The number 3 is how many more pens than notebooks were sold.

Point to the number 3 in the equation.

The letter **p** stands for the number of pens.

Point to the letter p in the equation.

This equation can be used to find the number of notebooks sold when 9 pens were sold.

Point to the equation as the TTS or TA reads the graphic description.

[Graphic description: "n plus three equals nine. n equals six."]

$$n + 3 = 9$$
 $n = 6$

There were 6 notebooks sold when 9 pens were sold.

This is another problem about a data table of values and an equation.

This data table shows different numbers of jackets and hats that the school store sold.

Point to the data table as the TTS or TA reads the graphic description.

[Graphic description: "This is a data table titled 'School Store Sales.' It shows the number of jackets, j, and number of hats, h. The store sold three jackets when eight hats were sold. The store sold four jackets when nine hats were sold. The store sold five jackets when ten hats were sold. There is an unknown number of jackets sold when eleven hats were sold."]

Item 35, continued

School Store Sales

Number of Jackets (j)	Number of Hats (h)
3	8
4	9
5	10
?	11

Which equation can be used to find **j**, the number of jackets sold, when 11 hats were sold?

Point to each option as the TTS or TA reads each graphic description.

[Graphic description: "A. j plus five equals eleven."]

$$_{A.}$$
 j + 5 = 11

[Graphic description: "B. eleven plus five equals j."]

_{B.}
$$11 + 5 = \mathbf{j}$$

[Graphic description: "C. j plus eleven equals five."]

$$_{c.}$$
 j + 11 = 5

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