

## **NJSLA Algebra I Mathematics**

### **Lesson 7: Fill in the Answer and Graphing**

#### **Rationale**

- Students need to explore using different types of items that will be found on the NJSLA assessment. This will foster confidence when completing assessment items.

#### **Goals**

- To provide the opportunity to review the Fill in the Answer and Graphing problems
- To complete a pencil and paper version of technology-enhanced items
- To consider response choices and their given categories, specific to Algebra I content

#### **Objectives**

- Students will work with problems using the Fill in the Answer and Graphing strategy, consequently being exposed to items that reflect the content and format of NJSLA items.

#### **Materials**

- NJSLA Equation Editor Tips
- Practice Problems Worksheet
- Graphing Practice Problems Worksheet

#### **Procedures**

- Tell students that sometimes they will be asked to fill in an answer to a problem. Sometimes the answer can be entered using the keyboard while other times they will need to use the equation editor.
- Pass out copies of the NJSLA online directions on how to use the equation editor. Read and discuss the directions.
- Form student-selected pairs or small groups. Give each pair of students the Practice Problems Worksheet. Have complete the problems in small groups. After students are done, have a class discussion to talk about they anticipate they would need to enter their answers into the assessment.
- Tell students that sometimes they will be required to graph in order to answer a problem. They may need to graph a type of equation, an inequality, a histogram, line plot, etc. A graphing utility will be provided on the NJSLA test.
- Pass out the Graphing Practice Problems Worksheet. Point out these are four problems that can be found on the NJSLA sample test on the NJSLA website. Have students review the four

types of graphing problems on the sheet. Have small groups of students create directions on how they would use the utility to answer the problem.

- Review the steps with the class as a whole.

### **Teacher & Teachers' Aide Observations During the Group Work**

- Circulate the classroom and monitor students while they are completing each part of this activity. Try to observe the following and note the information:

Which students are using their time wisely?

Are students creating viable arguments for their choices?

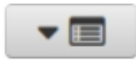
Which problem was the most challenging? The least challenging?

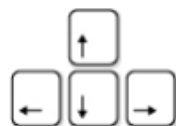
### **Check for Understanding**

- Have students reflect upon this experience by generating a class discussion of comments regarding this type of problems including possible strategies they can use to solve them.

### **Follow Up**

- You may wish to use the graphing utility examples and create your own graphing problems to use as a Do Now through the week.

If you are using a tablet, press the "more symbols" button  to show the side menus.



### Moving Around or Changing Your Answer

Use the arrow keys on the keyboard to move around an equation and to move out of fractions or parentheses.

Three buttons that are useful for changing your answer:



"Undo" what you just entered



"Redo" to restore what you deleted



"Clear All" to start over

Some symbols like times or divide act on two numbers. You can change those symbols to other symbols, but to delete the symbol you first need to delete one of the numbers it acts on.

$$2 + 3$$

To replace a plus, select the plus, then press the button for the symbol you want

$$2 + 3$$

To delete a plus, first delete one of the numbers it acts on

### Fill-in-the-Blank Questions

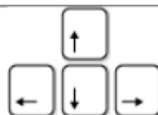
If there is already math in an answer box, fill in all of the blanks to complete the answer. The "Clear All" button will erase only the blanks. If you don't know the full answer, fill in as much as you can. You may get partial credit.

$$2 + \square = 3 + \square = 5$$

Fill in the blanks

### How to Move or Change Your Answer

- Use the arrow keys on your keyboard to move around in the box and to help with move out of fractions and parentheses.



- You can use these four buttons to change your answer:



"Clear all" to start over



"Undo" what you just entered



"Backspace" to remove math to the left



"Redo" to restore what you deleted

- Some symbols like  $\times$  or  $\div$  act on two numbers. You can change those symbols to other symbols, but to delete the symbol you first need to delete one of the numbers it acts on.


$$2 + 3$$

To change a plus (+) to a new symbol, select the plus (+), then select the button for the symbol you want to use.

$$2 + 3$$

To delete a plus (+), first delete one of the numbers that it acts on. In this example, delete the 3 first. Then delete the plus (+).

### How to Answer Fill-in-the-Blank Questions



- You may get to a new question and see numbers and symbols in the answer box. When you do, fill in all of the blanks to complete the answer.
- The “clear all” button  will erase only the blanks.
- If you don’t know the full answer, fill in as much of it as you can. You may get part of the answer right.

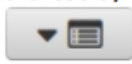
$$2 + \square = 3 + \square = 5$$

Fill in the blanks

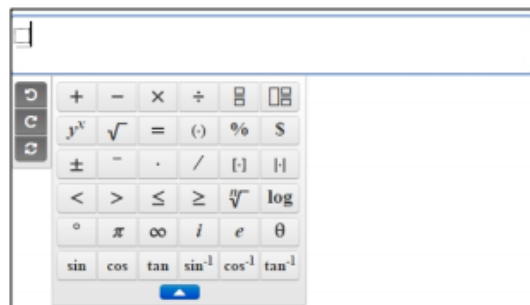
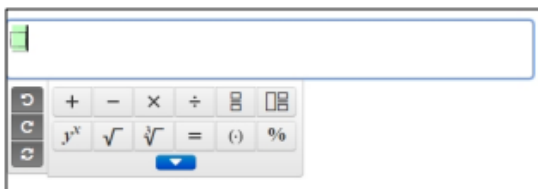
<https://nj.mypearsonsupport.com/tutorial/>

### Using the Math Symbols around the Answer Box

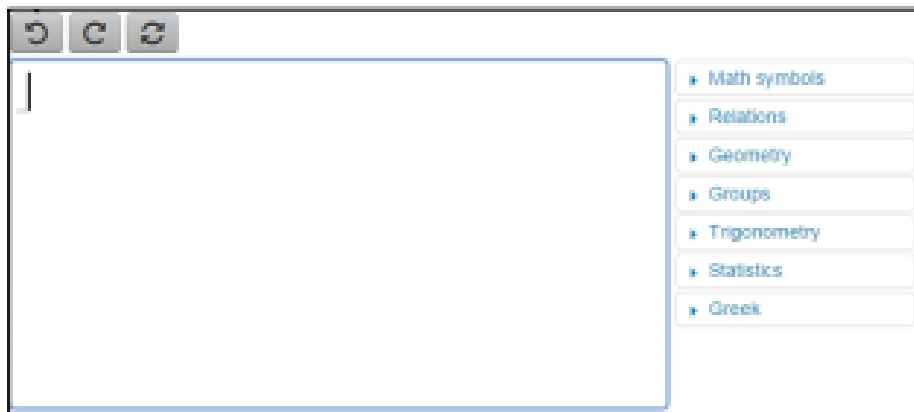
The bottom bar and side menus around the answer box have math symbols that you can use to enter your answer. Some of the math symbols may look familiar to you. Some math symbols may look new, like the symbols for fraction  and mixed number .

Click the blue arrows to open and close menus. Some symbols in the menus are not on your keyboard, and you may need these symbols to enter your answer. (If you are using a tablet, press the “More Symbols” button  to show the side menus.)

### Math-only answer box



### Words-and-math answer box



## Symbols Provided in the Drop Down Menus

▼ Numbers

0	1	2	3
4	5	6	7
8	9	,	.
$\pi$			

▼ Arithmetic and Units

+	-	$\times$	$\div$
$\pm$	-	.	/
$\S$	$^{\circ}$	%	

▼ Relations

=	$\neq$	$\sim$	$\approx$
<	>	$\approx$	$\napprox$
$\leq$	$\geq$	$\cong$	$\ncong$

▼ Geometry

$\rightarrow$	$\leftrightarrow$	-	$\parallel$
$\perp$	$\angle$	m $\angle$	$\triangle$
$\square$	$\odot$		

▼ Exponents and Roots

$y^x$	$\sqrt{\quad}$	$\sqrt[3]{\quad}$
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▼ Groups

( $\cdot$ )	[ $\cdot$ ]	{ $\cdot$ }	$\cdot$
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▼ Greek

$\alpha$	$\beta$	$\gamma$	$\delta$
$\theta$	$\pi$		

▼ Statistics

$\mu$	$\sigma$	$\bar{x}$	$\bar{y}$
$x^i$	$x_i$	$x!$	$\Sigma$

▼ Trigonometry

sin	sec	$\sin^{-1}$	$\sec^{-1}$
cos	csc	$\cos^{-1}$	$\csc^{-1}$
tan	cot	$\tan^{-1}$	$\cot^{-1}$

Name \_\_\_\_\_

## NJSLA Algebra 1

### Lesson 7: Fill in the Answer and Graphing Practice Problems

Directions: Below you will find one type of item found on the NJSLA test. Determine the correct answer(s) and then simulate the equation editor process. On a separate sheet of paper describe how to enter the answer.

#### Problem 1

What are the zeros of the equation  $y = 3x^2 + 14x + 8$  ?

Enter your answers in the space provided. You may not need to use all answer boxes.

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$x =$

$x =$

$x =$

$x =$

▶ Math symbols

▶ Relations

▶ Geometry

▶ Groups

▶ Trigonometry

▶ Statistics

▶ Greek

#### Problem 2

What is the  $y$ -coordinate of the solution to the following system?

$$\begin{cases} 9x - 11y = 27 \\ 5x - 2y = 15 \end{cases}$$

Enter your answer in the box.

$y =$

### Problem 3

A bacterium culture is growing exponentially. The number of bacterium  $B$  at time  $t$  is modeled by the function  $f(t) = ab^t$  where  $a$  and  $b$  are constants and  $t$  is measured in minutes. The table shows two values of the function.

$t$	$f(t)$
5	96
6	192

Write an equation that models the function. Enter your answer in the space provided.



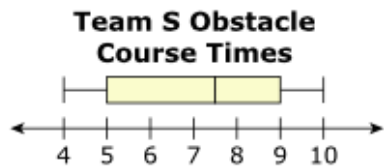
- ▶ Math symbols
- ▶ Relations
- ▶ Geometry
- ▶ Groups
- ▶ Trigonometry
- ▶ Statistics
- ▶ Greek

Problem 4

Members of two cross-country teams ran an obstacle course. The table shows the times, in minutes and seconds, for the members of team R to complete the course.

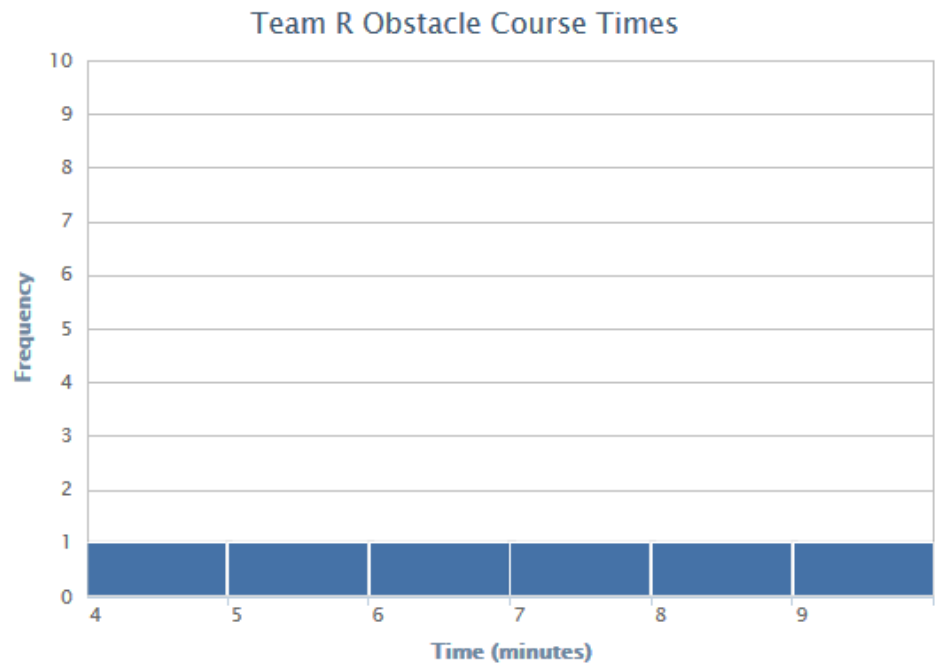
Team R Obstacle Course Times				
5:32	6:48	4:25	8:05	7:23
5:37	5:12	6:26	5:31	4:43
6:08	7:16	5:52	5:21	6:53
4:49	5:02	6:33	5:54	6:20

The obstacle course times, in minutes and seconds, for team S are summarized in the box plot shown.



Create a histogram showing the data for Team R.

Adjust the size of the slider by dragging the top of the slider to the appropriate height.





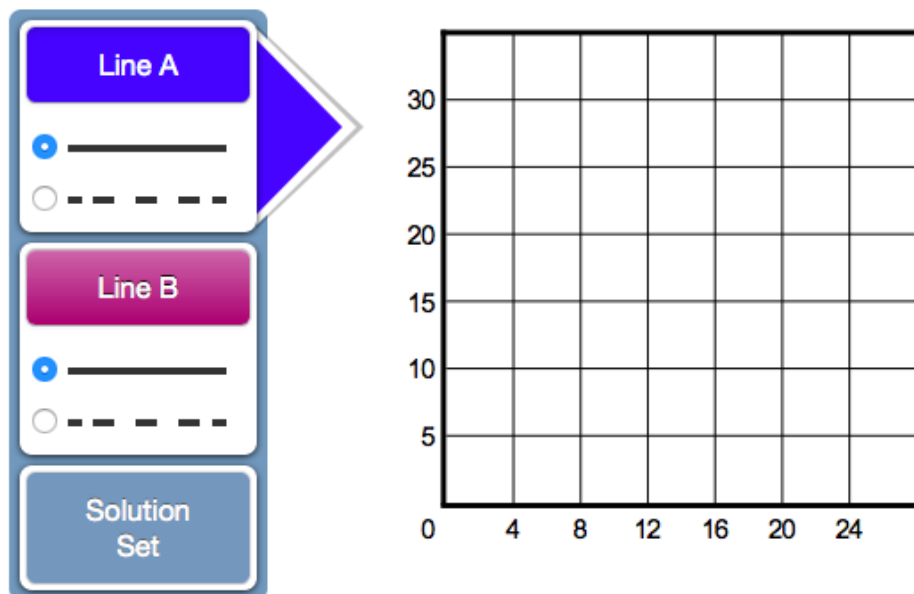
## Problem 5

Leah would like to earn at least \$120 per month. She babysits for \$5 per hour and works at an ice cream shop for \$8 per hour. Leah cannot work more than a total of 20 hours per month. Let  $x$  represent the number of hours Leah babysits and let  $y$  represent the number of hours Leah works at the ice cream shop.

### Part A

Graph the solution set of the system of linear inequalities in the coordinate plane by:

- selecting the “Line A” button, plotting two points and then choosing the line style to graph the number of hours Leah can work at both jobs to total no more than 20 hours.
- selecting the “Line B” button, plotting two points and then choosing the line style to graph the number of hours she needs to work at both jobs to earn at least \$120.
- selecting the “Solution Set” button to select the desired region.

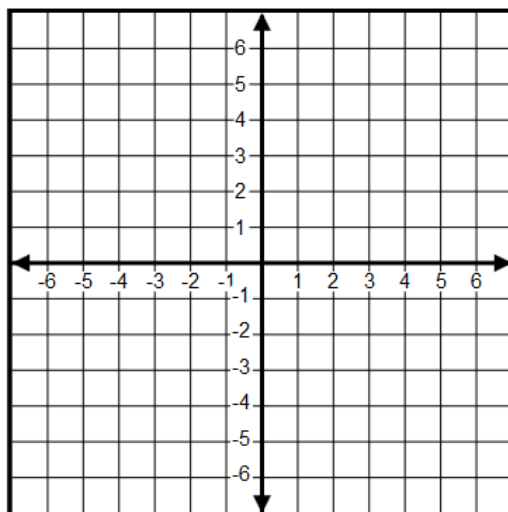
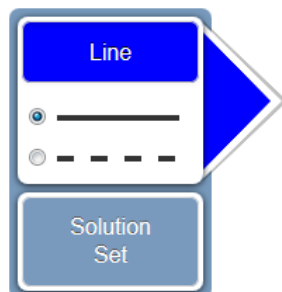


## Problem 6

Graph the solution set of  $2x + y > 6$ .

Graph the solution set of the linear inequality in the coordinate plane by

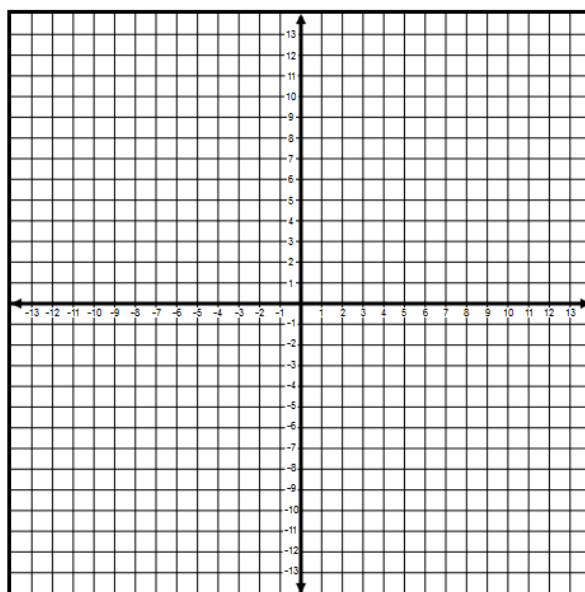
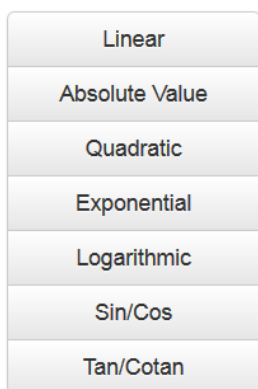
- selecting the "line" button to graph the line and choosing the line style,
- selecting the "solution set" button to select the desired region.



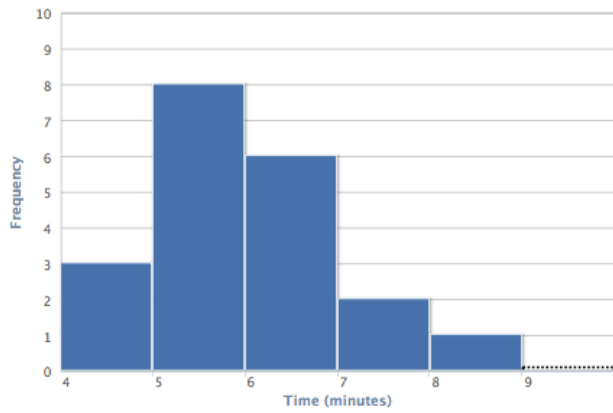
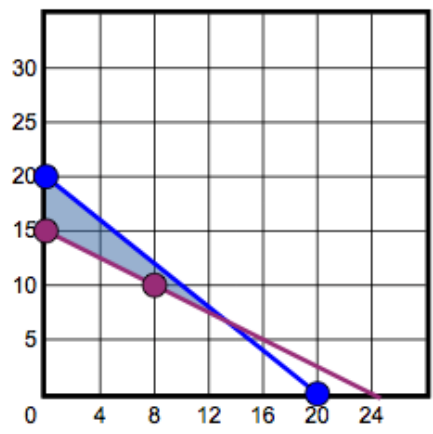
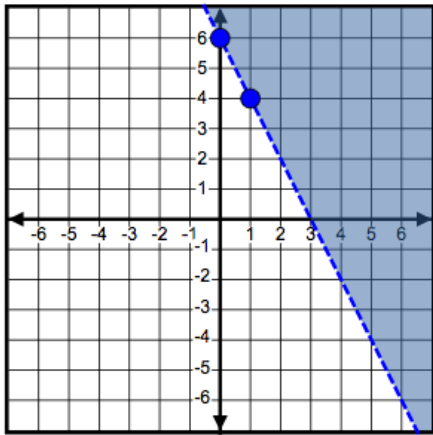
## Problem 7

Graph  $f(x) = -(x - 2)^2 + 4$ .

- Select a button to choose the type of graph.
- Drag the two points to the correct positions.



## Answer Key

Problem #	Answer												
#1	$x = -2/3, x = -4$												
#2	$y = 0$												
#3	$f(t) = 3(2)^t$												
#4	<p>Team R Obstacle Course Times</p>  <table border="1"> <caption>Team R Obstacle Course Times Data</caption> <thead> <tr> <th>Time (minutes)</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>4-5</td> <td>3</td> </tr> <tr> <td>5-6</td> <td>8</td> </tr> <tr> <td>6-7</td> <td>6</td> </tr> <tr> <td>7-8</td> <td>2</td> </tr> <tr> <td>8-9</td> <td>1</td> </tr> </tbody> </table>	Time (minutes)	Frequency	4-5	3	5-6	8	6-7	6	7-8	2	8-9	1
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#5													
#6													

#7

