Focus

Plan

TEKS

Talk

October 20, 2014
TASM Professional Development Meeting
Grades 6-8
Resources and Links

**Revised Mathematics TEKS: Side-by-Side TEKS Comparison**


**Vertical Alignment Charts for Revised Mathematics TEKS**

Project Share: [http://bit.ly/1w9ms9c](http://bit.ly/1w9ms9c)

**TASM Professional Development Meeting: Mind the Gap**

Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. 1(F) The student is expected to analyze mathematical relationships to connect and communicate mathematical ideas.
True or Not?

1. Substitute each value in the table into the inequality at the top. If the resulting inequality is true, shade the box with T. If resulting inequality is false, shade the box with F.

<table>
<thead>
<tr>
<th></th>
<th>4h ≤ 12</th>
<th></th>
<th>b + 3 &gt; 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>h = -5</td>
<td>T</td>
<td>b = -5</td>
<td>T</td>
</tr>
<tr>
<td>h = -4</td>
<td>T</td>
<td>b = -4</td>
<td>T</td>
</tr>
<tr>
<td>h = -3</td>
<td>T</td>
<td>b = -3</td>
<td>T</td>
</tr>
<tr>
<td>h = -2</td>
<td>T</td>
<td>b = -2</td>
<td>T</td>
</tr>
<tr>
<td>h = -1</td>
<td>T</td>
<td>b = -1</td>
<td>T</td>
</tr>
<tr>
<td>h = 0</td>
<td>T</td>
<td>b =  0</td>
<td>T</td>
</tr>
<tr>
<td>h = 1</td>
<td>T</td>
<td>b =  1</td>
<td>T</td>
</tr>
<tr>
<td>h = 2</td>
<td>T</td>
<td>b =  2</td>
<td>T</td>
</tr>
<tr>
<td>h = 3</td>
<td>T</td>
<td>b =  3</td>
<td>T</td>
</tr>
<tr>
<td>h = 4</td>
<td>T</td>
<td>b =  4</td>
<td>T</td>
</tr>
<tr>
<td>h = 5</td>
<td>T</td>
<td>b =  5</td>
<td>T</td>
</tr>
</tbody>
</table>

1. Transfer your answer to the number line below by placing dots on the values that made the inequality true.

   - For 4h ≤ 12:
     - Dots on -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5.
   - For b + 3 > 0:
     - Dots on -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5.

2. Use the tables and number lines above to graph the solutions to the equations below.

   - For 4h = 12:
     - Solution on 3.
   - For b + 3 = 0:
     - Solution on -3.

3. In the first inequality, how would values of h between 2 and 3 be shaded? Why?
1. Substitute each value in the table into the corresponding inequality at the top. If the substituted value makes the resulting inequality true, shade the box with T. If the substituted value makes the resulting inequality false, shade the box with F.

<table>
<thead>
<tr>
<th></th>
<th>-2x ≤ 8</th>
<th></th>
<th>-3y &gt; -6</th>
</tr>
</thead>
<tbody>
<tr>
<td>x = -5</td>
<td>T</td>
<td>y = -5</td>
<td>T</td>
</tr>
<tr>
<td>x = -4</td>
<td>T</td>
<td>y = -4</td>
<td>T</td>
</tr>
<tr>
<td>x = -3</td>
<td>F</td>
<td>y = -3</td>
<td>F</td>
</tr>
<tr>
<td>x = -2</td>
<td>F</td>
<td>y = -2</td>
<td>F</td>
</tr>
<tr>
<td>x = -1</td>
<td>F</td>
<td>y = -1</td>
<td>F</td>
</tr>
<tr>
<td>x = 0</td>
<td>F</td>
<td>y = 0</td>
<td>F</td>
</tr>
<tr>
<td>x = 1</td>
<td>T</td>
<td>y = 1</td>
<td>T</td>
</tr>
<tr>
<td>x = 2</td>
<td>T</td>
<td>y = 2</td>
<td>T</td>
</tr>
<tr>
<td>x = 3</td>
<td>T</td>
<td>y = 3</td>
<td>T</td>
</tr>
<tr>
<td>x = 4</td>
<td>F</td>
<td>y = 4</td>
<td>F</td>
</tr>
<tr>
<td>x = 5</td>
<td>F</td>
<td>y = 5</td>
<td>F</td>
</tr>
</tbody>
</table>

2. Transfer your answer to the number line below by placing dots on the values that made the inequality true.

-2x ≤ 8
-5 -4 -3 -2 -1 0 1 2 3 4 5

-3y > -6
-5 -4 -3 -2 -1 0 1 2 3 4 5

3. In the first inequality, how would values of x between -5 and -4 be shaded? Why?

4. In the second inequality, how would values of y between 1 and 2 be shaded? Why?
Understanding and Representing Solutions Stations
Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. 1(G) The student is expected to display, explain, and justify mathematical ideas and arguments using precise mathematical language in written or oral communication.
Liam and Lainey

Liam brought $28 to the arcade and played games that cost 75 cents each. Lainey brought $12 to the arcade and spent $4.25 on a slice of pizza and coke. How many games can Liam play so that he leaves with less money than Lainey?
Inequalities: Find Someone Who . . .

- Find a student who can answer one of the problems below.
- Ask him or her to write the answer in the appropriate place and sign his or her name.
- Continue this process until your paper is complete.
- Each student may only answer one problem on your paper.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Answer</th>
<th>Signature</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Using mathematical symbols, write an inequality that represents the statement: To get a driver’s license, a driver, <em>d</em>, should be at least 16 years old.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. The inequality, 4 &lt; 5, is a true number sentence. Will it remain true if you subtract 7 from both sides? Explain your thinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Using mathematical symbols, write an inequality that represents the statement: According to the forecast, the temperature, <em>t</em>, will not exceed 82°F.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. The inequality, 4 &lt; 5, is a true number sentence. Will it remain true if you multiply both sides by –7? Explain your thinking.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Solve: 2x &gt; –12.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Communicating about Mathematics
How do the inequalities and solutions for problems 5 and 6 compare to each other? Explain.
One-Variable Inequalities

Solve and graph each inequality. Select one value from the shaded portion of the number line and verify that it is a solution to the inequality.

Problem A
\[ 3x - 9 \leq 18 \]

My test value: __________

Problem B
\[ 6w - 1 < -13 \]

My test value: __________

Problem C
\[ 2 - \frac{1}{2}b < 5 \]

My test value: __________

Problem D
\[ -0.3p - 2.1 \leq -3.6 \]

My test value: __________

1. How are Problem A and Problem D similar?

2. How are Problem B and Problem C similar?

3. How are Problem A and Problem B different from Problem C and Problem D?
Cylindrical Situation

A cylindrical container with a diameter of 11.5 inches must fit within a shipping box. The shipping box is a cube with a side length of 12.5 inches. What could be the volume of the cylindrical container? Justify your answer.
Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. 1(C) The student is expected to select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.

<table>
<thead>
<tr>
<th>Acquire</th>
<th>Demonstrate</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

![Image](image_url)
Draw and Measure Angles

1. Draw an acute angle. Use your protractor to determine the measure of the angle to the nearest degree.

2. Draw an obtuse angle. Use your protractor to determine the measure of the angle to the nearest degree.
Sides and Angles

- Use a ruler to determine the measure of each side of the triangles below to the nearest centimeter. Label each side with its measure.
- Use a protractor to determine the measure of each interior angle of the triangles below to the nearest degree. Label each angle with its measure.

Communicating about Mathematics
What generalization can you make about the relationship between the angles and their opposite sides of these triangles?

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
**Pass the Paper: Geometric Relationships**

After completing each step, initial the paper and pass the paper to the person on your right.

<table>
<thead>
<tr>
<th>Step 1:</th>
<th>Write a variable expression representing the sum of the angles in the triangle below.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="6x" alt="Diagram of triangle with angles" />°, (2x)°, x°)</td>
</tr>
</tbody>
</table>

Step 2a: What is the sum of the three angles of a triangle?

Step 2b: Use the two expressions above to write an equation.

Step 3: Solve the equation from Step 2b to determine the value of x.

Step 4: Use the value of x from Step 3 to calculate the measures of angles A, B, and C.

<table>
<thead>
<tr>
<th>Angle</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>_____°</td>
</tr>
<tr>
<td>B</td>
<td>_____°</td>
</tr>
<tr>
<td>C</td>
<td>_____°</td>
</tr>
</tbody>
</table>

**Communicating about Mathematics**
How do you know your solution is reasonable?

________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
________________________________________________________________________________________
### I Do . . . You Do . . .!

Complete the missing information in each table.

<table>
<thead>
<tr>
<th>Set A</th>
<th>Picture</th>
<th>Description</th>
<th>Write and solve the equation.</th>
<th>Determine the measure of the angle.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do . . .</td>
<td><img src="image" alt="Set A Diagram" /></td>
<td>The sum of the measures of two complementary angles is 90°.</td>
<td>[4x + 22 = 90]</td>
<td>[4x = 68] [x = 17]</td>
</tr>
<tr>
<td>You do . . .</td>
<td><img src="image" alt="Set A Diagram" /></td>
<td>The sum of the measures of two angles is ____°.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Set B</th>
<th>Picture</th>
<th>Description</th>
<th>Write and solve the equation.</th>
<th>Determine the measure of the angle.</th>
</tr>
</thead>
<tbody>
<tr>
<td>I do . . .</td>
<td><img src="image" alt="Set B Diagram" /></td>
<td>Vertical angles are congruent.</td>
<td>[7x - 9 = 145]</td>
<td>[7x = 154] [x = 22]</td>
</tr>
<tr>
<td>You do . . .</td>
<td><img src="image" alt="Set B Diagram" /></td>
<td>Base angles of an isosceles triangle are __________.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Communicating about Mathematics

Compare the problems in Set A to the problems in Set B. What similarities and differences do you notice?

- __________________________________________________________________________
- __________________________________________________________________________
- __________________________________________________________________________
- __________________________________________________________________________
Remote Interior Angles

- Use a straightedge to draw any triangle $ABC$. Label the vertices.
- Use a straightedge to extend segment $AB$ past point $B$ to a point $D$. Label point $D$.
- Trace $\angle A$ and $\angle C$ onto patty paper as adjacent angles.
- Line up the adjacent angles with $\angle CBD$.

What relationship do you notice between the adjacent angles on the patty paper and $\angle CBD$?

Share your work with your partner. Is the same relationship seen in your partner’s work?

Communicating about Mathematics
Do you think the relationship seen for the triangle you drew holds true for any triangle? Justify your answer.

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________

_________________________________________________________________
Data Analysis: Center, Spread, and Shape

Mathematical Process Standards. The student uses mathematical processes to acquire and demonstrate mathematical understanding. 1(D) The student is expected to communicate mathematical ideas, reasoning, and their implications using multiple representations, including symbols, diagrams, graphs, and language as appropriate.

<table>
<thead>
<tr>
<th>Acquire</th>
<th>Demonstrate</th>
</tr>
</thead>
</table>
PIN Code

PIN (Personal Identification Numbers) codes are numerical codes that are used in banking, keyless entry systems, phone services, and security systems. In this activity you are to choose your own 4-digit PIN (example: 4382).

You will have 30 seconds to enter your PIN on the number pad as many times as possible. Your partner will count as you type, then you will count as your partner types. Only a complete and accurate entry will count; this means that all 4 numbers must be entered in the correct order followed by the ENTER key. If you make a mistake entering the PIN, you must start over and that entry will not count.

1. PIN ____ ____ ____ ____

2. Number of correct entries = ___________

Remember to press ENTER after each entry!

3. Data from 18 other people were collected. Add your data and your partner’s data to the list below.

   27, 12, 25, 20, 13, 14, 23, 19, 22, 21, 26, 16,
   15, 21, 17, 24, 16, 21, ____ , ____

4. Create a dot plot of the data below.

5. Calculate the mean and identify the median and mode of the data. Round your answers to the nearest tenth if necessary.

   Mean = _______  Median = ______  Mode = ______
Creating a Box and Whisker Plot

Use the data from **PIN Code** to answer the questions below to plot points in the space above the number line.

1. What is the minimum value for your data? _____ Plot this value with a point above the appropriate number on the number line and label it the minimum.

2. What is the maximum value for your data? _____ Plot this value with a point above the appropriate number on the number line and label it the maximum.

3. What is the median value for your data? _____ Draw a short vertical line segment at the median above the number line and label it the median.

By marking the minimum, maximum, and median you have successfully separated your data into two parts with the same number of data values in each part. Each of these two parts can also be separated into two parts to create quartiles.

4. The first quartile (written as $Q_1$) is the median of the data values between the minimum point and the median. What is $Q_1$ for your data? _____ On the number line above, draw a short vertical line segment above the value for $Q_1$. Label the segment $Q_1$.

5. The third quartile (written as $Q_3$) is the median of the data values between the median and the maximum point. What is $Q_3$ for your data? _____ On the number line above, draw a short vertical line segment above the value for $Q_3$. Label the segment $Q_3$.

6. Summarize the data below:

   Minimum = _______        Maximum = _______

   $Q_1$ = _______

   Median = _______

   $Q_3$ = _______

This list is sometimes referred to as the 5-point or 5-number summary.
7. To create the box part of the graph, draw horizontal lines to connect the tops and the bottoms of the 3 vertical line segments.

8. To create the whiskers, draw one horizontal segment connecting the minimum value to Q₁ then draw another horizontal segment connecting the maximum value to Q₃.

You have successfully completed your box and whisker plot!

9. Calculate the range for the entire data set.

10. How does the box and whisker plot compare to the dot plot?
Side-by-Side Comparisons

Marta loves basketball. She made the dot plots below to compare the heights of the players on her two favorite teams, the Cougars and the Armadillos.

- Cut out the **Description Cards**.
- With your partner, sort the cards into two piles, those that best describe the Cougars team and those that best describe the Armadillos team.
- After sorting, you and your partner should have six cards representing each team.
- Tape or glue any 3 cards describing each team into the appropriate place.
Am I Right?

Mrs. Turner’s students were asked to study box plots representing the average monthly temperatures in Honolulu, Hawaii and Las Vegas, Nevada for the year, 2013. Each student wrote a statement comparing the temperatures of the two cities. Determine whether you agree or disagree with each of their statements. Explain your thinking.

I agree / disagree with Marcus because . . .

I agree / disagree with Kylie because . . .

I agree / disagree with Carson because . . .

Most months in Las Vegas have average temperatures between about 68°F and 88°F since the third quartile is the longest part of the box plot.

Honolulu has greater variability in temperature because its median is higher.

The median temperatures for both cities are very close. There is less than a 10°F difference between them.
Thompson High School theatre students are responsible for selling tickets to the upcoming school play. Below is a dot plot showing the number of ticket sales by the first ten students submitting money. Calculate the average number of tickets sold per student. Mark the mean of the data set by placing a star below the corresponding value on the dot plot.

Each ● representing a data value has been replaced with a square. Mark the mean of the data with a star on the dot plot below. Fill in the square with the number of units the data value is from the starred mean.

Determine the sum of the values inside the boxes less than the mean. Determine the sum of the values inside the boxes greater than the mean. What do you notice about the two sums?

Add the two sums. This represents the accumulation of absolute deviations, or absolute differences, of the data values from the mean.

Because there are ten data values, divide the sum of the absolute deviations by ten to determine the mean absolute deviation.

In your own words, what information does the mean absolute deviation provide about the data set?
<table>
<thead>
<tr>
<th>Dot plot</th>
<th>Summarize</th>
<th>Variability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem-and-leaf plot</td>
<td>Mean</td>
<td>Comparative inference</td>
</tr>
<tr>
<td>Histogram</td>
<td>Median</td>
<td>Shape</td>
</tr>
<tr>
<td>Box plot</td>
<td>Interquartile range</td>
<td>Center</td>
</tr>
<tr>
<td>Distribution</td>
<td>Inference</td>
<td>Spread</td>
</tr>
<tr>
<td>Data</td>
<td>Mean absolute deviation</td>
<td></td>
</tr>
</tbody>
</table>
Never stray from a dogged focus on classroom instruction.

Steve Leinwand

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References


Connect with us!

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@r4mathleader
r4math
r4math
www.esc4.net/math
Concept Map: Solution
Where’s the Solution?

Cut apart the **Equation Cards** and place them face down in a draw pile. Determine which player will start the game. To win, a player should accumulate the most points.

- The first player draws a card and decides whether to draw again or keep the card. If the player decides to draw again, he or she returns the card to the draw pile and chooses a new card. The player must keep the second card.
- The player solves the equation on the card and places a point on the number line below to represent the graph of the solution to the equation. Label the point with the capital letter corresponding to the equation card. The player is awarded the number of points indicated on the number line.
- Play proceeds with Player 2.
- At any time if a player disagrees with the other player, he or she may challenge the work. The correct player is awarded the points.
- Play alternates between two players until all equations have been solved or time is up.

<table>
<thead>
<tr>
<th>Card</th>
<th>Solution</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Card</th>
<th>Solution</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Points: _____

**Communicating about Mathematics**

What strategy did you use to determine a reasonable placement of your non-integer solutions on the number line? Explain your strategy.

________________________________________________________
________________________________________________________
________________________________________________________
________________________________________________________
________________________________________________________
________________________________________________________
Equation Cards

Cut along the dotted lines. One set of cards is provided.

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A</strong></td>
<td>$3x - 2.1 = 4.5$</td>
<td></td>
</tr>
<tr>
<td><strong>B</strong></td>
<td>$3 - 5x = 12$</td>
<td><strong>C</strong></td>
</tr>
<tr>
<td><strong>D</strong></td>
<td>$3x - 1 = 8$</td>
<td><strong>E</strong></td>
</tr>
<tr>
<td><strong>F</strong></td>
<td>$-2 + 5x = -2$</td>
<td><strong>G</strong></td>
</tr>
<tr>
<td><strong>H</strong></td>
<td>$\frac{x - 6}{2} = -5$</td>
<td><strong>I</strong></td>
</tr>
<tr>
<td><strong>J</strong></td>
<td>$\frac{11}{12} = \frac{1}{2}x - \frac{3}{4}$</td>
<td><strong>K</strong></td>
</tr>
<tr>
<td><strong>L</strong></td>
<td>$-3.5 = -\frac{51}{2} - 6x$</td>
<td></td>
</tr>
</tbody>
</table>
### Representing Inequality Solutions

Cut out the **Number Line Cards**. For each situation below, write an inequality to model the situation. Solve the inequality. Choose the number line that best represents reasonable solutions for each situation.

<table>
<thead>
<tr>
<th></th>
<th>Inequality and Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>The Kingsville High School booster club is sponsoring a car wash to earn money for new soccer uniforms. They have already raised $250. At $3 per car, how many cars will they have to wash to accumulate more than $400?</td>
</tr>
<tr>
<td>2.</td>
<td>Julie’s family has a Christmas tree farm. After the winter break, they planted numerous small trees that were each about 250 mm tall. After three months, each grew to a height of more than 400 mm. What was the average rate of growth per month?</td>
</tr>
<tr>
<td>3.</td>
<td>Chris saved $400 by working during the school year. Instead of joining a gym to work out during the summer, he plans to pay $3 per visit. He would like to keep at least $250 so he can buy a new weight bench. How many workout sessions at the gym will he be able to attend and still have money for the weight bench?</td>
</tr>
</tbody>
</table>

---

**Communicating about Mathematics**

Consider the situations above. Do the number line representations show all possible solutions for each situation? Explain your thinking.

---

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Number Line Cards

Cut along the bold dotted lines. Four sets of cards are provided.
True or False Ordered Pairs

1. Substitute each ordered pair in the table into the equation at the top. If the resulting equation is true, shade the box with T. If resulting equation is false, shade the box with F.

<table>
<thead>
<tr>
<th>Ordered Pair</th>
<th>T</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>(-6, 2)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(-4, 1.5)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(-2, 1)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(-1, -0.5)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(0, 0.5)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(2, 0)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(3, 1)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(4, -0.5)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(6, -1)</td>
<td>T</td>
<td>F</td>
</tr>
</tbody>
</table>

2. On the coordinate below, plot the ordered pairs from the table above that make the equation true.

![Coordinate Plane]

3. Determine three additional ordered pairs that make the equation true.

(____, ____)  (____, ____)  (____, ____)

4. How did you determine the three additional ordered pairs? Explain your thinking.
Ordered Pairs True or False

5. Substitute each ordered pair in the table into the equation at the top. If the resulting equation is true, shade the box with T. If resulting equation is false, shade the box with F.

\[ y = 2x + 1 \]

<table>
<thead>
<tr>
<th>Ordered Pair</th>
<th>T</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>(-5, -10)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(-4, -7)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(-2, -3)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(-1, -1)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(0, 1)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(2, 3)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(3, 7)</td>
<td>T</td>
<td>F</td>
</tr>
<tr>
<td>(4, 10)</td>
<td>T</td>
<td>F</td>
</tr>
</tbody>
</table>

6. On the coordinate below, plot the ordered pairs from the table above that make the equation true.

7. Determine three additional ordered pairs that make the equation true.

\[(___, ___) (___, ___) (___, ___)\]

8. How did you determine the three additional ordered pairs? Explain your thinking.
True or False?

Two lines are graphed on the coordinate plane below.

**Graphical Representation:**
If a point is a solution to an equation, then the point will be on the graph of the equation.

**Algebraic Representation:**
If a point is a solution to an equation, then substituting the values for \( x \) and \( y \) will produce a true statement.

Complete the table.

<table>
<thead>
<tr>
<th>Graph the point.</th>
<th>Is the point a solution to the equation for Line 1? Justify your response.</th>
<th>Is the point a solution to the equation for Line 2? Justify your response.</th>
<th>Is the point a solution for both graphed equations?</th>
</tr>
</thead>
<tbody>
<tr>
<td>( A(3, 4) )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( B(-3, -4) )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( C(1, 2) )</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( D(3, -2) )</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Communicating about Mathematics**
How can the graph of two linear equations help you quickly identify values of \( x \) and \( y \) that are solutions to both linear equations? Justify your thinking.

________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________
Roles

Student 1
I know how to set up the inequality, but I often struggle with rational number computations.

Student 2
I can solve an inequality if it is given to me, but I struggle to write an inequality from a word problem.

Student 3
I have good number sense and can generally determine the numeric solution to a problem, but I struggle to write algebraic expressions and inequalities.

Student 4
I know how to write expressions to represent how much money Liam and Lainey have, but I sometimes struggle with what to do next.

Student 5
I can solve a two-step equation, but I do not understand how the solution to an equation relates to the solution to an inequality.

Student 6
I can read the problem and understand how to calculate numeric values within the problem, but I struggle with representing variable expressions within problems.

Student 7
I know that I sometimes need to "flip" the inequality sign, but I often forget when I am supposed to "flip" it.

Student 8
I am really good at math, and I understand everything about writing and solving inequalities.
Solving and Graphing One-Variable Inequalities Notes Page

Inequality: $3x < -6$

What points do I plot?
How do I know these points make the inequality true?

Open circle or closed circle?
How do I know based on the inequality symbol?

Which direction do I shade?
How do I know?

Inequality: $-2x - 4 \leq 10$

What points do I plot?
How do I know these points make the inequality true?

Open circle or closed circle?
How do I know based on the inequality symbol?

Which direction do I shade?
How do I know?
Hint Card: 4 Steps to Measuring an Angle with a Protractor

**Step 1**
Place the origin over the point, or vertex, of the angle you want to measure.

**Step 2**
Align one of the rays of the angle with the base line of the protractor.

**Step 3**
Start at zero and use the corresponding scale along the protractors arc.

**Step 4**
Carefully use the corresponding scale to determine the measure of the angle.

**Types of Angles**

- **Acute**: Between 0 and 90 degrees
- **Right**: 90°
- **Obtuse**: Between 90 and 180 degrees

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Cut along the dotted lines.

<table>
<thead>
<tr>
<th>Dot plot</th>
<th>Summarize</th>
<th>Variability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem-and-leaf</td>
<td>Mean</td>
<td>Comparative inference</td>
</tr>
<tr>
<td>plot</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Histogram</td>
<td>Median</td>
<td>Shape</td>
</tr>
<tr>
<td>Box plot</td>
<td>Interquartile range</td>
<td>Center</td>
</tr>
<tr>
<td>Distribution</td>
<td>Inference</td>
<td>Spread</td>
</tr>
<tr>
<td>Data</td>
<td>Mean absolute deviation</td>
<td></td>
</tr>
</tbody>
</table>
### Description Cards

*Cut along the bold dotted line. Two sets of cards are provided.*

<table>
<thead>
<tr>
<th>The range in player heights is 12 inches.</th>
<th>The range in player heights is 12 inches.</th>
</tr>
</thead>
<tbody>
<tr>
<td>The median player height is 79 inches.</td>
<td>The median player height is 79 inches.</td>
</tr>
<tr>
<td>According to the data in the dot plot, there are 17 team members.</td>
<td>According to the data in the dot plot, there are 17 team members.</td>
</tr>
<tr>
<td>No one on this team is 7 feet tall.</td>
<td>No one on this team is 7 feet tall.</td>
</tr>
<tr>
<td>The tallest player is 6'11&quot; tall.</td>
<td>The tallest player is 6'11&quot; tall.</td>
</tr>
<tr>
<td>The median and the mode are the same for this data set.</td>
<td>The median and the mode are the same for this data set.</td>
</tr>
<tr>
<td>More than twice as many players are 81 inches tall as compared to 79 inches tall.</td>
<td>More than twice as many players are 81 inches tall as compared to 79 inches tall.</td>
</tr>
<tr>
<td>The median and the mean, when rounded to the nearest whole number, are the same for this data set.</td>
<td>The median and the mean, when rounded to the nearest whole number, are the same for this data set.</td>
</tr>
<tr>
<td>The mode player height is 81 inches.</td>
<td>The mode player height is 81 inches.</td>
</tr>
<tr>
<td>There is more variability in heights among the tallest 25% of the players on this team than on the other team.</td>
<td>There is more variability in heights among the tallest 25% of the players on this team than on the other team.</td>
</tr>
<tr>
<td>The number of players who are 81 inches tall is less than half the number of players who are 83 inches tall.</td>
<td>The number of players who are 81 inches tall is less than half the number of players who are 83 inches tall.</td>
</tr>
<tr>
<td>About 73% of the players on this team are at least 6.5 feet tall.</td>
<td>About 73% of the players on this team are at least 6.5 feet tall.</td>
</tr>
</tbody>
</table>
Turn and Talk

Cut along the dotted lines.

Bounce Card

Listen to what your partner said and bounce an idea off of what they said.

You may start with one of the following sentence starters.

I agree because...
I disagree because...
That is a great point because...
I am not sure about that because...

Sum it Up Card

Rephrase what your partner said in a shorter version.

You may start with one of the following sentence starters.

I hear you saying...
So, if I understand you correctly...
I like how you said...

Inquire Card

Understand what your partner means by asking them questions.

You may start with one of the following question starters.

Can you tell me more about ...?
I see your point, but what about...?
Have you thought about...?