## Name

$\qquad$
Brighter Choice
Charter School for Boys

## $5^{\text {th }}$ Grade Math Remote Learning Packet

## Week 34



Dear Educator,
My signature is proof that I have reviewed my scholar's work and supported him to the best of my ability to complete all assignments.

Parents please note that all academic packets are also available on our website at www.brighterchoice.org under the heading "Remote Learning." All academic packet assignments are mandatory and must be completed by all scholars.


Name: $\qquad$
BCCS-Boys

Week 34 Day 1 Date: $\qquad$
Stanford MIT

Do Now


1. What are the coordinates of points $A, B$, and $C$ ?
A $\qquad$ , ___)
B $\qquad$
$\qquad$ C $\qquad$
$\qquad$
2. Plot point $D$ so that the four points make a rectangle.
3. What are the coordinates of point D? ( $\qquad$ , ____
4. On the same coordinate grid, plot these coordinates:
E (7, 6)
F $(7,8)$
G $(9,8)$
H $(9,6)$
5. Join the coordinates together. What shape do they make? $\qquad$

## Problem 1

Write the point that is located at each ordered pair.
$(2,5)$ $\qquad$
$(9,3)$ $\qquad$ $(7,2)$ $\qquad$
$(6,6)$ $\qquad$ $(8,6)$ $\qquad$
$(4,9)$ $\qquad$ $(3,4)$ $\qquad$
$(5,1)$ $\qquad$ $(1,2)$ $\qquad$

## Problem 2



## Problem 3

Directions: Write the coordinates of the plotted points by starting with the X-axis (horizontal) and moving up the $y$-axis (vertical).

A. (
 , ——
) E. ( $\qquad$
$\qquad$ ) I. ( $\qquad$ _
B. ( $\qquad$ , __ )
) F. ( $\qquad$ 9 $\qquad$ ) J. ( $\qquad$ , $\qquad$
C. ( , ___ ) )
G. ( $\qquad$ , __ $) \mathrm{K}$ ( $\qquad$ , __ )
D. ( $\qquad$ , $\qquad$ ) H. ( $\qquad$ , $\qquad$ ) L. ( $\qquad$ , $\qquad$ )

## Problem 4

Use the grid below to determine the coordinates where each figure is located.


1) Star
2) Lightning
3) Circle
4) Heart
5) Cross
6) Triangle
7) Moon
8) Square
9) Diamond
10) Music Note

## Problem 5 Coordinates

Directions: Plot the points below by starting with the X-axis (horizontal) and moving up the $y$-axis (vertical). Draw a dot where the two numbers meet on the coordinate plane.


## Problem Set

Determine which letter is at each coordinate using the grid below.
$(4,8)$

$(6,7)$ $\qquad$
$(2,10)$ $\qquad$
$(1,7)$ $\qquad$
$(8,9)$ $\qquad$
$(4,6)$ $\qquad$
$(3,6)$ $\qquad$
$(1,8)$ $\qquad$
$(10,9)$ $\qquad$
$(6,4)$ $\qquad$


## Application Problem

Wesley had a very busy morning. He went to the bank to get some money out. He then proceeded to the toy store to pick up a basketball. After getting his basketball, Wesley went to park to play ball with his friends. After his long day, he finally went back home! What are the locations of each place he stopped at?


Park ( $\qquad$ , $\qquad$ )

Toy Store ( $\qquad$ ,

Home ( $\qquad$ , _

## Exit Ticket

Write the ordered pair of each letter on the lines below.


Write the ordered pair for each basketball.



Name: $\qquad$ Week 34 Day 2 Date: $\qquad$
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## Do Now

Name the coordinates of the following letters.


$\qquad$

Z $\qquad$

L $\qquad$

W

B $\qquad$

A

K $\qquad$

Review:


What is the value of $A$ ? $\qquad$
What is the value of $B$ ? $\qquad$
What is the value of $C$ ? $\qquad$


What is the value of $D$ ? $\qquad$
What is the value of $E$ ? $\qquad$
What is the value of $F$ ? $\qquad$
What is the value of G ? $\qquad$
What is the value of H ?


What is the value of $M$ ? $\qquad$
What is the value of $N$ ? $\qquad$
What is the value of $P$ ? $\qquad$
What is the value of $Q$ ?


What is the value of $J$ ? $\qquad$
What is the value of $K$ ? $\qquad$ What is the value of $L$ ?

## Review:



Write the points for the following:

A
B $\qquad$
D
C
$\qquad$

F
G
J
H $\qquad$


K $\qquad$

## Input Activity:

## Problem 1:

## Construct a coordinate plane.

## Creating $X$ and $Y$ Axis

- On the $x$-axis, we are going to label the whole numbers only. The length of one square on the grid represents 1 fourth. How many whole numbers can we label?
- Count by fourths with me as we label the whole number grid lines. One fourth .... (Move along the $x$-axis while counting, and label every whole number grid line.)
- What is the coordinate of $A$ ?



## Problem 2

Use coordinate pairs to name and plot points.
Let's label the coordinate pairs with the $X$ axis first, then the $Y$ axis second.

| Letter | XAxis | Y Axis | Coordinate ( , ) |
| :---: | :---: | :---: | :---: |
| A |  |  |  |
| B |  |  |  |
| C |  |  |  |
| D |  |  |  |
| E |  |  |  |
| F |  |  |  |
| G |  |  |  |
| H |  |  |  |
| I |  |  |  |

## Problem Set

1. Use the grid below to complete the following tasks.
a. Construct an $x$-axis that passes through points $A$ and $B$.
b. Construct a perpendicular $y$-axis that passes through points $C$ and $F$.
c. Label the origin as 0 .
d. The $x$-coordinate of $B$ is $5 \frac{2}{3}$. Label the whole numbers along the $x$-axis.
e. The $y$-coordinate of $C$ is $5 \frac{1}{3}$. Label the whole numbers along the $y$-axis.

2. Identify all of the points that have an $x$-coordinate of $3 \frac{1}{3}$.
3. Identify all of the points that have a $y$-coordinate of $2 \frac{2}{3}$.
4. Which point is located at $\left(3 \frac{1}{3}, 2 \frac{2}{3}\right)$ ? $\qquad$ at $\left(5 \frac{1}{3}, 2 \frac{2}{3}\right)$ ?
at $\left(1 \frac{2}{3}, \frac{2}{3}\right)$ ? $\qquad$
5. Give the coordinate pair for each of the following points.
K: $\qquad$ I: $\qquad$ B: $\qquad$ C: $\qquad$
6. Name the points located at the following coordinates.
$\left(1 \frac{2}{3}, \frac{2}{3}\right)$
$\left(0,2 \frac{2}{3}\right)$ $\qquad$ $(1,0)$
$\ldots\left(2,5 \frac{2}{3}\right)$
7. Which point has an equal $x$ and $y$ coordinate? $\qquad$
8. Plot the following points.
P: $\left(4 \frac{1}{3}, 4\right)$
$Q:\left(\frac{1}{3}, 6\right)$
$R:\left(4 \frac{2}{3}, 1\right)$
$s:\left(0,1 \frac{2}{3}\right)$

## Application Problem:

The captain of a ship has a chart to help him navigate through the islands. He must follow points that show the deepest part of the channel. List the coordinates the captain needs to follow in the order he will encounter them.

1.

) 2.

4.
 5. $\qquad$ ___) 6. (__ , __)

## Exit Ticket

Use a ruler on the grid below to construct the axes for a coordinate plane. The $x$-axis should intersect points $L$ and $M$. Construct the $y$-axis so that it contains points $K$ and $L$. Label each axis.


| Point | $x$-coordinate | $y$-coordinate |
| :---: | :---: | :---: |
| $B$ | $\frac{1}{4}$ | 0 |
| $C$ | $1 \frac{1}{4}$ | $\frac{3}{4}$ |

What letter is located at $\left(0,1 \frac{1}{2}\right)$ ? $\qquad$ What letter is located at $\left(1 \frac{3}{4}, 0\right)$ ?


Name: $\qquad$
BCCS-Boys Week 34 Day 3 Date: $\qquad$ Stanford MIT

## Do Now

Help the animal reach its food by plotting points and connecting them with lines.
$(8,2),(8,4),(6,4),(5,4),(5,7)$


Review:


What is the value of $M$ ?
What is the value of $N$ ? $\qquad$

What is the value of $P$ ? $\qquad$ What is the value of $Q$ ?


What is the value of $J$ ?
What is the value of $K$ ?
What is the value of $L$ ? $\qquad$


Review:
Write the points for the following:

A


C
D
E $\qquad$

K $\qquad$


H


J


G


## Input Activity

## Problem 1:

1. Label the $x$ and $y$ axis, the origin, and the number lines.
2. Plot point $A$ at $\left(2 \frac{1}{2}, 1 \frac{1}{4}\right)$.
3. Construct a line, $\ell$, so that it contains $A$ and is perpendicular to the $x$-axis. (draw the line)
4. Give the coordinates for another point on line $\ell$ that is $1 \frac{1}{2}$ units farther from the $x$-axis than $A$. Label it $B$.
5. Name the coordinates of $B$. ( $\qquad$ ,___)
6. Give the coordinates for the point on $\ell$ that is halfway between $A$ and $B$.

7. Label is C .
8. Now, draw a line, , that is perpendicular to line $\ell$ and $\frac{1}{2}$ unit from the $x$-axis. (Draw the line.)
9. Plot a point, $D$, where lines $\ell$ and $m$ intersect.
10. Plot a point, $E$, on line $m$ that is $\frac{3}{4}$ unit from the $y$-axis. Then, record the coordinates of $E$ in the chart.
11. Name the coordinates of $E$. ( $\qquad$ , $\qquad$ _)
12. Plot a point $F$ on line $m$ that is $\frac{3}{4}$ unit farther from the $y$-axis than $E$. Then, record the coordinates of $F$ in the chart.
13. Plot a point $F$ on line $m$ that is $\frac{3}{4}$ unit farther from the $y$-axis than $E$. Then, record the coordinates of $F$ in the chart. (Plot $F$ and record.)
14. Use your straightedge to construct a line, $n$, which is parallel to line $\ell$ and contains point $F$.
15. Name the $x$-coordinate for every point on line $n$. $\qquad$


## Problem Set:

Plot the following points, and label them on the coordinate plane.

| $A:(0.3,0.1)$ | $B:(0.3,0.7)$ |
| :--- | :--- |
| $C:(0.2,0.9)$ | $D:(0.4,0.9)$ |

a. Use a straightedge to construct line segments $\overline{A B}$ and $\overline{C D}$.
b. Line segment $\qquad$ is parallel to the $x$ axis and is perpendicular to the $y$-axis.
c. Line segment $\qquad$ is parallel to the $y$ axis and is perpendicular to the $x$-axis.

d. Plot a point on line segment $\overline{A B}$ that is not at the endpoints, and name it $U$. Write the coordinates. U $\qquad$ , $\qquad$ )
e. Plot a point on line segment $\overline{C D}$, and name it $V$. Write the coordinates. $V$ ( $\qquad$ , $\qquad$ )

## Application Problem:

Naomi lives at Second Avenue and Third Street represented by $(2,3)$ on the graph below. Her school is a Fourth Avenue and 10th Street represented by $(4,10)$ on the graph. She walks over to Fourth Avenue and up to 10 Street. Plot her home and school on the map.


How many blocks did Naomi walk to school? $\qquad$

## Exit Ticket

Plot the given points in the following order, connect them and help the trumpeter find his musical trumpet.
$(1,7),(1,8),(4,8),(4,9),(8,9)$



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## Do Now

Help the animal reach its food by plotting points and connecting them with lines.
$(3,5),(5,5),(5,2),(8,2),(8,1)$



## Input Activity

Problem 1


| Point | $\boldsymbol{x}$ | $\boldsymbol{y}$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $\boldsymbol{H}$ |  |  |  |
| $\boldsymbol{I}$ |  |  |  |
| $\boldsymbol{J}$ |  |  |  |
| $\boldsymbol{K}$ |  |  |  |
| $\boldsymbol{L}$ |  |  |  |

1. Plot a point, $H$, which is 3 units from the $x$-axis and 4 units from the $y$-axis. Write its coordinates on the chart.
2. Plot I at $(10,3)$ and write its coordinates on the chart. Plot J at $(8,3)$ and write its coordinates on the chart.
3. What do you notice about these points and their coordinates? $\qquad$
$\qquad$
4. Draw a straight line going through $\mathrm{H}, \mathrm{I}$, and J. Label it $w$. What do you notice about this line? $\qquad$ Will this line ever intersect the x axis? $\qquad$
5. Finish this sentence Line $w$ is $\qquad$ to the $x$-axis.
6. Does $w$ intersect with the $y$ axis? $\qquad$ Give the coordinates of the intersection ( $\qquad$ , ___
7. What kind of angle is formed at the intersection of line $w$ and the $y$ axis? $\qquad$
8. What is the name for intersecting lines that form right angles?
9. Finish this sentence: Line $w$ is perpendicular to the $\qquad$ axis.
10. Plot points $K$ and $L$ so that they are on line $w$; then, record their coordinates in the chart.
11. Let's make two more lines parallel to $w$. One higher labeled $p$ and one lower labeled $q$.

## Problem 2



| Point | $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $D$ | $2 \frac{1}{2}$ | 0 | $\left(2 \frac{1}{2}, 0\right)$ |
| $E$ | $2 \frac{1}{2}$ | 2 | $\left(2 \frac{1}{2}, 2\right)$ |
| $F$ | $2 \frac{1}{2}$ | 4 | $\left(2 \frac{1}{2}, 4\right)$ |

1. Plot $D, E$, and $F$ on the grid.
2. Draw a straight line going through $D, E$, and $F$. Label it $m$. What do you notice about this line? $\qquad$
3. Will this line ever intersect the $y$ axis? $\qquad$
4. Finish this sentence Line $m$ is $\qquad$ to the $y$-axis.

## Problem 3:

Use the coordinate plane to the right to answer the following questions.
a. Use a straightedge to construct a line that goes through points $A$ and $B$. Label the line $e$.
b. Line $e$ is parallel to the $\qquad$ -axis and is perpendicular to the $\qquad$ axis.
c. Plot two more points on line $e$. Name them $C$ and $D$.
d. Give the coordinates of each point below.


A: $\qquad$ B: $\qquad$
$C$ : $\qquad$ D: $\qquad$
e. What do all of the points of line $e$ have in common? $\qquad$
f. Give the coordinates of another point that would fall on line $e$ with an $x$-coordinate greater than 15.

## Problem Set:

1. Plot the following points on the coordinate plane on the following page.
$P:\left(1 \frac{1}{2}, \frac{1}{2}\right)$
$Q:\left(1 \frac{1}{2}, 2 \frac{1}{2}\right)$
$R:\left(1 \frac{1}{2}, 1 \frac{1}{4}\right)$
$S:\left(1 \frac{1}{2}, \frac{3}{4}\right)$
a. Use a straightedge to draw a line to connect these points. Label the line $h$.
b. In line $h, x=$ $\qquad$ for all values of $y$.
c. Circle the correct word.

Line $h$ is parallel perpendicular to the $x$-axis.
Line $h$ is parallel perpendicular to the $y$-axis.
d. What pattern occurs in the coordinate pairs that let you know that line $h$ is vertical?
2. For each pair of points below, think about the line that joins them. For which pairs is the line parallel to the $x$-axis? Circle your answer.
a. (1.4, 2.2) and (4.1, 2.4)
b. $(3,9)$ and $(8,9)$
c. $\left(1 \frac{1}{4}, 2\right)$ and $\left(1 \frac{1}{4}, 8\right)$
3. For each pair of points below, think about the line that joins them. For which pairs is the line parallel to the $y$-axis? Circle your answer.
a. $(4,12)$ and $(6,12)$
b. $\left(\frac{3}{5}, 2 \frac{3}{5}\right)$ and $\left(\frac{1}{5}, 2 \frac{3}{5}\right)$
c. $(0.8,1.9)$ and $(0.8,2.3)$



1. Plot the following points on the coordinate plane to the right.
$H:\left(\frac{3}{4}, 3\right)$
I: $\left(\frac{3}{4}, 2 \frac{1}{4}\right)$
$J:\left(\frac{3}{4}, \frac{1}{2}\right)$
$K:\left(\frac{3}{4}, 1 \frac{3}{4}\right)$
a. Use a straightedge to draw a line to connect these points. Label the line $z$.
b. In line $z, x=$ $\qquad$ for all values of $y$.
c. Circle the correct word:

Line $Z$ is parallel perpendicular to the $x$-axis.

Line $z$ is parallel perpendicular to the $y$-axis.

## Exit Ticket



1. Use a straightedge to construct a line that goes through points $A$ and $B$. Label the line $\ell$.
2. Which axis is parallel to line $\ell$ ? $\qquad$
3. Which axis is perpendicular to line $\ell$ ? $\qquad$
4. Plot two more points on line $\ell$. Name them $C$ and $D$.
5. Give the coordinates of each point below.
$A$ : $\qquad$ B: $\qquad$ $C$ : $\qquad$ D: $\qquad$


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## Do Now



Tell what point is located at each ordered pair.

1) $(0,6)$ $\qquad$ 6) $(7,9)$ $\qquad$
2) $(6,2)$ $\qquad$ 7) $(0,1)$ $\qquad$
3) $(9,5)$ $\qquad$
4) $(3,6)$ $\qquad$
5) $(6,6)$ $\qquad$
6) $(8,8)$ $\qquad$
7) $(0,2)$ $\qquad$ 10) $(7,4)$ $\qquad$

## Review:

Write the coordinates for the following:

$\qquad$
A $\qquad$
B $\qquad$
D $\qquad$
E $\qquad$

Write the coordinates for the following:

B $\qquad$
D $\qquad$
A $\qquad$
G $\qquad$
C $\qquad$
E $\qquad$
F $\qquad$

## Input Activity

## Problem 1

a.

| Point | $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $A$ | 0 | 0 | $(0,0)$ |
| $B$ | 1 | 1 | $(1,1)$ |
| $C$ | 2 | 2 | $(2,2)$ |
| $D$ | 3 | 3 | $(3,3)$ |

## Problem 2

a.

| Point | $(x, y)$ |
| :---: | :---: |
| $L$ | $(0,3)$ |
| $M$ | $(2,3)$ |
| $N$ | $(4,3)$ |

b.

| Point | $(x, y)$ |
| :---: | :---: |
| $O$ | $(0,0)$ |
| $P$ | $(1,2)$ |
| $Q$ | $(2,4)$ |

c.

| Point | $(x, y)$ |
| :---: | :---: |
| $R$ | $\left(1, \frac{1}{2}\right)$ |
| $S$ | $\left(2,1 \frac{1}{2}\right)$ |
| $T$ | $\left(3,2 \frac{1}{2}\right)$ |

d.

| Point | $(x, y)$ |
| :---: | :---: |
| $U$ | $(1,3)$ |
| $V$ | $(2,6)$ |
| $W$ | $(3,9)$ |

1. Which chart shows coordinate pairs for the rule $y$ is always 3 ?
$\qquad$ Write the rule underneath that chart.
2. Which chart shows every $y$-coordinate is less than every $x$ coordinate? $\qquad$ How much less? $\qquad$
3. What is the rule? $\qquad$ Write it underneath that chart.
4. Which chart shows coordinate pairs on a line that follows the rule $y$ is $x$ times 2 ? $\qquad$ Write the rule underneath that chart.
5. Let's come up with a rule for the final chart $\qquad$ Write the rule underneath that chart.

## Problem 3

a.

| Point | $(x, y)$ |
| :---: | :---: | :---: |
| $L$ | $(0,3)$ |
| $M$ | $(2,3)$ |
| $N$ | $(4,3)$ |$\quad$| Point | $(x, y)$ |
| :---: | :---: | :---: |
| $O$ | $(0,0)$ |
| $P$ | $(1,2)$ |
| $Q$ | $(2,4)$ |$\quad$| Point | $(x, y)$ |
| :---: | :---: |
| $R$ | $\left(1, \frac{1}{2}\right)$ |
| $S$ | $\left(2,1 \frac{1}{2}\right)$ |
| $T$ | $\left(3,2 \frac{1}{2}\right)$ |$\quad$| Point | $(x, y)$ |
| :---: | :---: | :---: |
| $U$ | $(1,3)$ |
| $V$ | $(2,6)$ |
| $W$ | $(3,9)$ |



## Problem Set:

1. Complete the chart. Then, plot the points on the coordinate plane below.

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 | 1 | $(0,1)$ |
| 2 | 3 |  |
| 4 | 5 |  |
| 6 | 7 |  |

a. Use a straightedge to draw a line connecting these points.

b. Write a rule showing the relationship between the $x$-and $y$-coordinates of points on the line.
c. Name 2 other points that are on this line. $\qquad$
$\qquad$
2. Complete the chart. Then, plot the points on the coordinate plane below.

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| $\frac{1}{2}$ | 1 |  |
| 1 | 2 |  |
| $1 \frac{1}{2}$ | 3 |  |
| 2 | 4 |  |

a. Use a straightedge to draw a line connecting these points.

b. Write a rule showing the relationship between the $x$-and $y$-coordinates.
c. Name 2 other points that are on this line. $\qquad$

## Application Problem:

3. Use the coordinate plane below to answer the following questions.

a. Give the coordinates for 3 points that are on line $a$. $\qquad$
$\qquad$
b. Write a rule that describes the relationship between the $x$-and $y$-coordinates for the points on line $a$.
c. What do you notice about the $y$-coordinates of every point on line $\&$ ?
d. Fill in the missing coordinates for points on line $d$.
(12, $\qquad$
( $6, \ldots$ )
$\qquad$ 24)
$(28, \quad, \quad)$ $\qquad$ 28)
e. For any point on line $c$, the $x$-coordinate is $\qquad$ .
f. Each of the points lies on at least 1 of the lines shown in the plane on the previous page. Identify a line that contains each of the following points.
i. $(7,7) \_$a
ii. $(14,8)$ $\qquad$ iii. $(5,10)$ $\qquad$
iv. $(0,17)$ $\qquad$
v. $(15.3,9.3)$ $\qquad$
vi. $(20,40)$ $\qquad$

## Exit Ticket:

Complete the chart. Then, plot the points on the coordinate plane.

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 | 4 |  |
| 2 | 6 |  |
| 3 | 7 |  |
| 7 | 11 |  |

1. Use a straightedge to draw a line connecting these points.
2. Write a rule to show the relationship between the $x$ - and $y$-coordinates for points on the line.

3. Name two other points that are also on this line.

Name
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## $5^{\text {th }}$ Grade Math Remote Learning Packet

## Week 35



Dear Educator,
My signature is proof that I have reviewed my scholar's work and supported him to the best of my ability to complete all assignments.

Parents please note that all academic packets are also available on our website at www.brighterchoice.org under the heading "Remote Learning." All academic packet assignments are mandatory and must be completed by all scholars.


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## Do Now

Use the coordinate plane to answer the following questions.
a. For any point on line $\boldsymbol{m}$, the $x$-coordinate is
$\qquad$ -
b. Give the coordinates for 3 points that are on line $\boldsymbol{n}$.
c. Write a rule that describes the relationship between the $x$ - and $y$-coordinates on line $\boldsymbol{n}$.


## Review:



1. Label the $x$ and $y$ axes and label the origin.
2. Along both axes, label each interval, counting by ones to five.
3. Plot $(0,1)$ on your grid.
4. Plot $(1,2),(2,3)$, and $(3,4)$
5. Draw a line through each point you just plotted.
6. Write 2 pairs of whole number coordinates on the passing line through the points you plotted.
( , ) and ( , )

# Input Activity 

## Problem 1

## Create coordinate pairs from rules.

a. $\boldsymbol{y}$ is equal to $\boldsymbol{x}$
b. $y$ is $\mathbf{1}$ more than $\boldsymbol{x}$
c. $\boldsymbol{y}$ is $\mathbf{5}$ times $\boldsymbol{x}$

## d. $\boldsymbol{y}$ is $\mathbf{1}$ more than $\mathbf{3}$ times $\boldsymbol{x}$

e. $\boldsymbol{y}$ is $\mathbf{1}$ less than $\mathbf{2}$ times $\boldsymbol{x}$

## Problem 2

## Create coordinate pairs from rules, and plot the points.

## Rules $\longrightarrow \begin{gathered}\text { Line } a: y \text { is } 2 \text { more than } x . \\ \text { Line } b: y \text { is } 2 \text { times } x . \\ \text { Line } c: y \text { is } 1 \text { more than } x \text { doubled. }\end{gathered}$



1. Record the rule for line $a$ in chart a.
2. What range of values does our axes show?
3. What will you need to think about as you pick your values for $x$ ?
4. Let's plot three points on your grid.
5. Use a straight edge to draw line $a$.
6. Let's repeat steps $1-4$ for line $b$ and line $c$.
7. Which lines appear to be parallel?
8. Do any lines intersect?
9. Which lines intersect? $\qquad$
10. What is the coordinate pair for the point at which they intersect?
11. Give the coordinate pair where line a and c intersect $\qquad$

| Line $c: y$ is 1 more than $x$ doubled. |  |  |
| :---: | :---: | :---: |
| $x$ | $y$ | $(x, y)$ |
| 0 |  |  |
| 3 |  |  |
| 6 |  |  |


| Line $a: y$ is 2 more than $x$ |  |  |
| :---: | :---: | :---: |
| $x$ | $y$ | $(x, y)$ |
| 0 |  |  |
| 3 |  |  |
| 8 |  |  |


| Line $b: y$ is $\mathbf{2}$ times $\boldsymbol{x}$ |  |  |
| :---: | :---: | :---: |
| $x$ | $y$ | $(x, y)$ |
| 0 |  |  |
| 4 |  |  |
| 7 |  |  |

## Problem 3

Create a table of 3 values for $x$ and $y$ such that each $y$-coordinate is 3 more than the corresponding $x$-coordinate.

| $x$ | $y$ | $(x, y)$ |
| :---: | :--- | :--- |
| 1 |  |  |
| 3 |  |  |
| 5 |  |  |

a. Plot each point on the coordinate plane.
b. Use a straightedge to draw a line connecting these points.

c. Give the coordinates of 2 other points that fall on this line with $x$-coordinates greater than 12 .
$\qquad$ , $\qquad$ ) and ( $\qquad$ , $\qquad$ _)

## Problem 4

Create a table of 3 values for $x$ and $y$ such that each $y$-coordinate is 3 times as much as its corresponding $x$-coordinate.

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
|  |  |  |
|  |  |  |
|  |  |  |

a. Plot each point on the coordinate plane.
b. Use a straightedge to draw a line connecting these points.

c. Give the coordinates of 2 other points that fall on this line with $y$-coordinates greater than 25 .
$\qquad$
$\qquad$ ) and ( $\qquad$ , $\qquad$

## Problem 5

3. Create a table of 5 values for $x$ and $y$ such that each $y$-coordinate is 1 more than 3 times as much as its corresponding $x$ value.

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |
| 5 |  |  |


c. Give the coordinates of 2 other points that would fall on this line whose $x$-coordinates are greater than 12.
$\qquad$
$\qquad$ ) and ( $\qquad$ _()

## Problem Set

Use the coordinate plane below to complete the following tasks.
a. Graph the lines on the plane.
line $\ell: x$ is equal to $y$

|  | $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- | :--- |
| $A$ |  |  |  |
| $B$ |  |  |  |
| $C$ |  |  |  |

line $m$ : $y$ is 1 more than $x$

|  | $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $G$ |  |  |  |
| $H$ |  |  |  |
| $I$ |  |  |  |

line $n: y$ is 1 more than twice $x$

|  | $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- | :--- |
| $S$ |  |  |  |
| $T$ |  |  |  |
| $U$ |  |  |  |


b. Which two lines intersect? Give the coordinates of their intersection.
c. Which two lines are parallel?
d. Give the rule for another line that would be parallel to the lines you listed in Problem 4(c).

## Application Problem:

The coordinate pairs listed locate points on two different lines. Write a rule that describes the relationship between the $x$ - and $y$-coordinates for each line.

Line $\ell:\left(3 \frac{1}{2}, 7\right),\left(1 \frac{2}{3}, 3 \frac{1}{3}\right),(5,10)$
Rule: $\qquad$

Line $m:\left(\frac{6}{3}, 1\right),\left(3 \frac{1}{2}, 1 \frac{3}{4}\right),\left(13,6 \frac{1}{2}\right)$

Rule: $\qquad$

## Exit Ticket

Complete this table with values for $y$ such that each $y$-coordinate is 5 more than 2 times as much as its corresponding $x$-coordinate.

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 2 |  |  |
| 3. |  |  |

a. Plot each point on the coordinate plane.
b. Use a straightedge to draw a line connecting these points.
c. Name 2 other points that fall on this line with
 $y$-coordinates greater than 25 .


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## Do Now

Use the coordinate plane below to complete the following tasks.
a. Graph these lines on the plane.
line $\ell: x$ is equal to $y$

|  | $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- | :--- |
| $A$ |  |  |  |
| $B$ |  |  |  |
| $C$ |  |  |  |

line $m$ : $y$ is 1 less than $x$

|  | $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $G$ |  |  |  |
| $H$ |  |  |  |
| $I$ |  |  |  |

line $n: y$ is 1 less than twice $x$

|  | $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- | :--- |
| $S$ |  |  |  |
| $T$ |  |  |  |
| $U$ |  |  |  |



## Problem 1:

Line $\ell$

Rule: $y$ is 2 more than $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 1 |  |  |
| 5 |  |  |
| 10 |  |  |
| 15 |  |  |

Line $m$

Rule: $y$ is 5 more than $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 5 |  |  |
| 10 |  |  |
| 15 |  |  |



Line $p$
Rule: $y$ is $x$ times 2

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 2 |  |  |
| 4 |  |  |
| 6 |  |  |
| 8 |  |  |

Problem 2:

Rule: $y$ is $x$ times 3

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 1 |  |  |
| 3 |  |  |
| 5 |  |  |
| 6 |  |  |



## Problem 3:

Complete the table for the given rules.
Line $a$
Rule: $y$ is 1 more than $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 1 |  |  |
| 5 |  |  |
| 9 |  |  |
| 13 |  |  |

Line $b$
Rule: $y$ is 4 more than $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 5 |  |  |
| 8 |  |  |
| 11 |  |  |


a. Construct each line on the coordinate plane above.
b. Compare and contrast these lines.

## Problem Set:

Complete the table for the given rules.
Line $e$
Rule: $y$ is 3 times as much as $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 1 |  |  |
| 4 |  |  |
| 6 |  |  |

Line $f$
Rule: $y$ is a third as much as $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 3 |  |  |
| 9 |  |  |
| 15 |  |  |


a. Construct each line on the coordinate plane.
b. Compare and contrast these lines.

## Application Problem:

Complete the table for the given rules.
Line $e$
Rule: $y$ is twice as much as $x$

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 |  |  |
| 2 |  |  |
| 5 |  |  |
| 9 |  |  |

Line $f$
Rule: $y$ is half as much as $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 6 |  |  |
| 10 |  |  |
| 20 |  |  |


a. Construct each line on the coordinate plane above.
b. Compare and contrast these lines.

## Exit Ticket:

Complete the table for the given rules. Then, construct lines $\ell$ and $m$ on the coordinate plane.

## Line $\ell$

Rule: $y$ is 5 more than $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 4 |  |  |

Line $m$
Rule: $y$ is 5 times as much as $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 4 |  |  |




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## Do Now

Complete the table for the given rules.
Line $a$
Rule: $y$ is 1 less than $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 1 |  |  |
| 4 |  |  |
| 9 |  |  |
| 16 |  |  |

Line $b$
Rule: $y$ is 5 less than $x$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 5 |  |  |
| 8 |  |  |
| 14 |  |  |
| 20 |  |  |


a. Construct each line on the coordinate plane.
b. Compare and contrast these lines.

## Problem 1:

Line $p$
Line $b$
Line $c$
Line $d$
Rule: $y$ is 0 more than $x$ Rule: $\qquad$ Rule: $\qquad$ Rule: $\qquad$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 5 |  |  |
| 10 |  |  |
| 15 |  |  |


| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 7 |  |  |
| 10 |  |  |
| 13 |  |  |
| 18 |  |  |


| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 2 |  |  |
| 4 |  |  |
| 8 |  |  |
| 11 |  |  |


| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 5 |  |  |
| 7 |  |  |
| 12 |  |  |
| 15 |  |  |



Problem 2:

Line g Rule:

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 1 |  |  |
| 2 |  |  |
| 5 |  |  |
| 7 |  |  |

Line $h$ Rule: $\qquad$

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 3 |  |  |
| 6 |  |  |
| 12 |  |  |
| 15 |  |  |



## Problem 3:

Use the coordinate plane below to complete the following tasks.
a. Line $p$ represents the rule $x$ and $y$ are equal.
b. Construct a line, $d$, that is parallel to line $p$ and contains point $D$.
c. Name 3 coordinate pairs on line $d$.
d. Identify a rule to describe line $d$.
e. Construct a line, $e$, that is parallel to line $p$ and contains point $E$.
f. Name 3 points on line $e$.
g. Identify a rule to describe line $e$.

h. Compare and contrast lines $d$ and $e$ in terms of their relationship to line $p$.

## Problem Set:

Use the coordinate plane below to complete the following tasks.
a. Line $p$ represents the rule $x$ and $y$ are equal.
b. Construct a line, $v$, that contains the origin and point $V$.
c. Name 3 points on line $v$.
d. Identify a rule to describe line $v$.
e. Construct a line, $w$, that contains the origin and point $W$.
f. Name 3 points on line $w$.

g. Identify a rule to describe line $w$.
h. Compare and contrast lines $v$ and $w$ in terms of their relationship to line $p$.

## Application Problem

Use the coordinate plane below to complete the following tasks.
a. Line $p$ represents the rule $x$ and $y$ are equal.
b. Construct a line, $v$, that contains the origin and point $V$.
c. Name 3 points on line $v$.
d. Identify a rule to describe line $v$.

e. Construct a line, $w$, that contains the origin and point $W$.
f. Name 3 points on line $w$.
g. Identify a rule to describe line $w$.
h. Compare and contrast lines $v$ and $w$ in terms of their relationship to line $p$.

## Exit Ticket:

Use the coordinate plane below to complete the following tasks.
a. Line $p$ represents the rule $x$ and $y$ are equal.
b. Construct a line, $a$, that is parallel to line $p$ and contains point $A$.
c. Name 3 points on line $a$.
d. Identify a rule to describe line $a$.



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## Do Now

Use the coordinate plane below to complete the following tasks.
a. Line $p$ represents the rule $x$ and $y$ are equal.
b. Construct a line, $v$, that contains the origin and point $V$.
c. Name 3 points on line $v$.
d. Identify a rule to describe line $v$.

e. Construct a line, $w$, that contains the origin and point $W$.
f. Name 3 points on line $w$.
g. Identify a rule to describe line $w$.

## Input Activity:

## Problem 1:

Line $\ell$

Rule: Triple $x$

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 4 |  |  |

Line $m$

Rule: Triple $x$, and then add 3

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

Line $n$

Rule: Triple $x$, and then
subtract 2

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |
| 4 |  |  |



## Problem 2:

Rule: $y$ is $\frac{3}{4}$ more than $x$ times $\frac{1}{2}$

| $X$ | $Y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 1 |  |  |
| $1 \frac{1}{2}$ |  |  |
| $\frac{3}{4}$ |  |  |
| $2 \frac{1}{4}$ |  |  |

## Problem 3:

Complete the tables for the given rules.

Line $\ell$

Rule: Double $x$

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

Line $m$
Rule: Double $x$, and then add 1

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |


a. Draw each line on the coordinate plane above.
b. Compare and contrast these lines.

## Problem Set:

Complete the tables for the given rules.
Line $\ell$
Rule: Halve $x$

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

Line $m$
Rule: Halve $x$, and then add $1 \frac{1}{2}$

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |


a. Draw each line on the coordinate plane above.
b. Compare and contrast these lines.

## Application Problem:

tomplete the tables for the given rules.
Line $\ell$

Rule: Halve $x$,

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

Line $m$
Rule: Halve $x$, and then add 1:

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |



Draw each line on the coordinate plane above.

Compare and contrast these lines.

## Exit Ticket:

1. Complete the tables for the given rules.

Line $\ell$

Rule: Triple $x$

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

Line $m$
Rule: Triple $x$, and then add 1

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |


a. Draw each line on the coordinate plane above.
b. Compare and contrast these lines.


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## Do Now

Complete the tables for the given rules. Line $\ell$

Rule: Halve $x$, and then add 1

| $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |

Line $m$
Rule: Halve $x$, and then
add. 2

| $x$ | $y$ | $(x, y)$ |
| :--- | :--- | :--- |
| 0 |  |  |
| 1 |  |  |
| 2 |  |  |
| 3 |  |  |


a. Draw each line on the coordinate plane above.
b. Compare and contrast these lines.

Input Activity:
Problem 1:

Line $l$
Rule:

| Point | $\boldsymbol{x}$ | $\boldsymbol{y}$ | $(\boldsymbol{x}, \boldsymbol{y})$ |
| :---: | :---: | :---: | :---: |
| $A$ | $1 \frac{1}{2}$ | 3 | $\left(1 \frac{1}{2}, 3\right)$ |
| $B$ |  |  |  |
| $C$ |  |  |  |
| $D$ |  |  |  |


| Point | $\boldsymbol{x}$ | $\boldsymbol{y}$ | $(x, y)$ |
| :---: | :--- | :--- | :--- |
| $A$ |  |  |  |
| $E$ |  |  |  |
| $F$ |  |  |  |
| $G$ |  |  |  |

## Problem 2:

Create a mixed operation rule for the line that contains the points $(0,1)$ and $(1,3)$.

| Point | $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $O$ |  |  |  |
| $P$ |  |  |  |

b. Write a rule for a line that is parallel to $\overleftrightarrow{O P}$ and goes through point (1, $2 \frac{1}{2}$ ).


## Problem 3:

Write a rule for the line that contains the points $\left(0, \frac{3}{4}\right)$ and $\left(2 \frac{1}{2}, 3 \frac{1}{4}\right)$.
a. Identify 2 more points on this line. Draw the line on the grid below.

| Point | $\boldsymbol{x}$ | $\boldsymbol{y}$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $B$ |  |  |  |
| $C$ |  |  |  |

b. Write a rule for a line that is parallel to $\overleftrightarrow{B C}$ and goes through point ( $1, \frac{1}{4}$ ).

Create a rule for the line that contains the points ( $1, \frac{1}{4}$ ) and $\left(3, \frac{3}{4}\right)$.
a. Identify 2 more points on this line. Draw the line on the grid on the right.

| Point | $\boldsymbol{x}$ | $\boldsymbol{y}$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $G$ |  |  |  |
| $H$ |  |  |  |


b. Write a rule for a line that passes through the origin and lies between $\overleftrightarrow{B C}$ and $\overleftrightarrow{G H}$.

## Problem Set:

Give the rule for a line that contains the point $\frac{1}{2}, 1 \frac{1}{2}$ using the operation or description below. Then, name 2 other points that would fall on each line.
a. Addition: $\qquad$

| Point | $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $T$ |  |  |  |
| $U$ |  |  |  |

c. Multiplication:

| Point | $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $A$ |  |  |  |
| $B$ |  |  |  |

d. A line parallel to the $y$-axis: $\qquad$

| Point | $x$ | $y$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $V$ |  |  |  |
| $W$ |  |  |  |

e. Multiplication with addition: $\qquad$

| Point | $\boldsymbol{x}$ | $\boldsymbol{y}$ | $(x, y)$ |
| :---: | :---: | :---: | :---: |
| $R$ |  |  |  |
| $S$ |  |  |  |

## Application Problem:

Andrew drew the following rocket on the grid below. He handed the grid to you, his partner, to write the coordinates for each point of Andrew's rocket. Using the rocket grid, write down the coordinates of each point.


1) Write down the coordinates of this rocket.

$$
A(\ldots, \quad)
$$

B ( $\quad, \quad, \quad$ )
$\mathrm{C}(\ldots, \ldots)$
D (__,
E (__,
F (__,
$\qquad$

## Exit Ticket:



1) What are the coordinates of points $A, B$ and $C$ ?
A ( $\qquad$ )
B ( $\qquad$ ,__)
C 1 $\qquad$ ,__)
2) Plot point $D$ so that the four points make a rectangle.
3) What are the coordinates of point $D$ ? ( $\qquad$ , __)
4) On the same coordinate grid, plot these coordinates:

$$
E(7,6) \quad F(7,8) \quad G(9,8) \quad H(9,6)
$$

5) Join the coordinates together. What shape do they make? $\qquad$
