Parts of a Line

A _______ is drawn with an arrow pointing in both directions. The arrows mean that the line goes on forever.

To tell the difference between different lines, we use two points on them.

We say this is “LINE AB”.
We write this as $\overrightarrow{AB}$ or $\overrightarrow{BA}$.

We say this is “LINE CD.”
We write this as $\overrightarrow{CD}$ or $\overrightarrow{DC}$.

What if there is more than one point on a line? Simple. It just means that it has more names.

We can call this $\overrightarrow{WX}$, $\overrightarrow{XW}$, $\overrightarrow{WY}$, $\overrightarrow{YW}$, $\overrightarrow{WY}$, or $\overrightarrow{YW}$. All of these are talking about the same line.

A _________ is a specific part of the line from one point to another. We draw them with points on both ends. This means that we are talking about a certain distance. You can always take a ruler and say how long it is. You can’t do that with a line.

We say this is “LINE SEGMENT AB.”
We write this as $\overline{AB}$ or $\overline{BA}$.

We say this is “LINE SEGMENT CD.”
We write this as $\overline{CD}$ or $\overline{DC}$.

A _________ is a combination of a line segment and a line. It always starts at a point and then goes forever.

We say this is “RAY AB.”
We write this as $\overrightarrow{AB}$.

This is not the same as $\overrightarrow{BA}$
Look at $FG$. Find the length of the indicated line segments.

1) $FG = _____$ inches
2) $FH = _____$ inches
3) $HK = _____$ inches
4) $HJ = _____$ inches
5) $IG = _____$ inches
6) $KG = _____$ inches

A ______________ is a point that is in the middle of a line segment.

For example: X is the midpoint of $AB$. X is also the midpoint of $QW$.

If R is the midpoint of $AJ$ in the picture below, then what are the lengths of the following line segments?

7) $AB = _____$ inches
8) $DE = _____$ inches
9) $RG = _____$ inches
10) $BF = _____$ inches
11) $RA = _____$ inches
12) $CE = _____$ inches

_____________ are lines that will never cross. ______________ are lines that cross at a $90^\circ$ angle.
Parts of a Line

A **Line** is drawn with an arrow pointing in both directions. The arrows mean that the line goes on *forever*.

To tell the difference between different lines, we use two points on them.

![Diagram of lines AB and CD]

We say this is “LINE AB”. We say this is “LINE CD.”

We write this as $\overrightarrow{AB}$ or $\overrightarrow{BA}$. We write this as $\overrightarrow{CD}$ or $\overrightarrow{DC}$.

What if there is more than one point on a **line**? Simple. It just means that it has more names.

![Diagram of WX, XY, YX, WY, YW, YW, WY]

We can call this $\overrightarrow{WX}$, $\overrightarrow{XW}$, $\overrightarrow{WY}$, $\overrightarrow{YW}$, $\overrightarrow{WY}$, or $\overrightarrow{YW}$. All of these are talking about the same line.

A **Line Segment** is a specific part of the line from one point to another. We draw them with points on both ends. This means that we are talking about a *certain distance*. You can always take a ruler and say how long it is. You can’t do that with a **line**.

![Diagram of line segments AB and CD]

We say this is “LINE SEGMENT AB.” We say this is “LINE SEGMENT CD.”

We write this as $\overline{AB}$ or $\overline{BA}$. We write this as $\overline{CD}$ or $\overline{DC}$.

A **Ray** is a combination of a line segment and a line. It always starts at a point and then goes forever.

![Diagram of ray AB]

We say this is “RAY AB.”

We write this as $\overrightarrow{AB}$.

This is not the same as $\overrightarrow{BA}$.
Look at $FG$. Find the length of the indicated line segments.

1) $FG = \underline{1}$ inches
2) $FH = \underline{2}$ inches
3) $HK = \underline{3}$ inches
4) $HJ = \underline{2}$ inches
5) $IG = \underline{2}$ inches
6) $KG = \underline{4}$ inches

A **Midpoint** is a point that is in the middle of a line segment.

For example: $X$ is the midpoint of $AB$. $X$ is also the midpoint of $QW$.

If **R is the midpoint of** $AJ$ in the picture below, then what are the lengths of the following line segments?

7) $AB = \underline{1/2}$ inches
8) $DE = \underline{1/2}$ inches
9) $RG = \underline{1}$ inches
10) $BF = \underline{2 1/2}$ inches
11) $RA = \underline{2 1/2}$ inches
12) $CE = \underline{1}$ inches

**Parallel Lines** are lines that will never cross. **Perpendicular Lines** are lines that cross at a 90° angle.