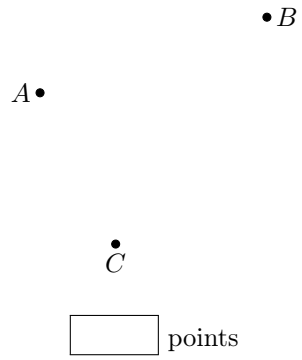
# ELEMENTS OF GEOMETRY

## A POINT

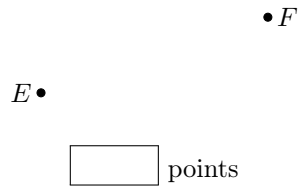
### A.1 COUNTING NUMBER OF POINTS

**Ex 1:** Count the points in the figure.



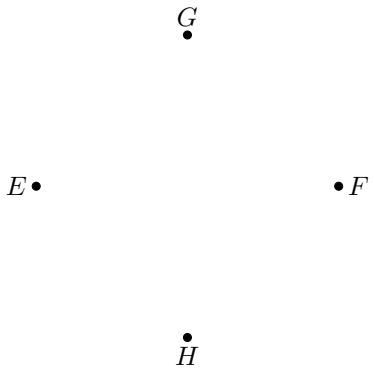

☐ points

**Ex 2:** Count the points in the figure.




☐ points

**Ex 3:** Count the points in the figure.




☐ points

**Ex 4:** Count the points in the figure.


☐ point

### A.2 DRAWING POINTS

**Ex 5:** Using a pencil, draw a point and label it $A$.

**Ex 6:** Using a pencil, draw two points and label them $A$ and $B$.

**Ex 7:** Using a pencil, draw three points and label them $A$, $B$, and $C$.

## B LINES, SEGMENTS AND RAYS

### B.1 RECOGNIZING

**MCQ 8:** Which term describes this figure?

**Choose one answer:**

- ☐ Line
- ☐ Line segment
- ☐ Ray

**MCQ 9:** Which term describes this figure?

**Choose one answer:**

- ☐ Line
- ☐ Line segment
- ☐ Ray

**MCQ 10:** Which term describes this figure?

**Choose one answer:**

- ☐ Line
- ☐ Line segment
- ☐ Ray

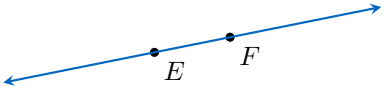
**MCQ 11:** Which term describes this figure?

**Choose one answer:**

- ☐ Line
- ☐ Line segment
- ☐ Ray

## B.2 NAMING

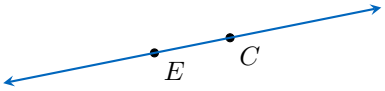
**MCQ 12:** Name the line represented in this figure:




**Choose one answer:**

- ☐ $\overline{EF}$
- ☐ $\overleftrightarrow{EF}$
- ☐ $\overrightarrow{EF}$

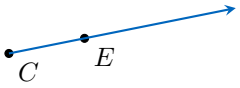
**MCQ 13:** Name the line represented in this figure:




**Choose one answer:**

- ☐ $\overline{CE}$
- ☐ $\overleftrightarrow{CE}$
- ☐ $\overrightarrow{CE}$

**MCQ 14:** Name the ray represented in this figure:




**Choose one answer:**

- ☐ $\overline{CE}$
- ☐ $\overleftrightarrow{CE}$
- ☐ $\overrightarrow{CE}$
- ☐ $\overrightarrow{EC}$

**MCQ 15:** Name the ray represented in this figure:


**Choose one answer:**

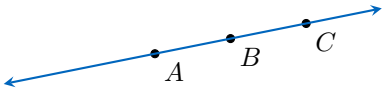
- ☐ $\overline{EC}$
- ☐ $\overleftrightarrow{EC}$
- ☐ $\overrightarrow{CE}$
- ☐ $\overrightarrow{EC}$

**MCQ 16:** Name the segment represented in this figure:


**Choose one answer:**

- ☐ $\overline{EC}$
- ☐ $\overleftrightarrow{EC}$
- ☐ $\overrightarrow{EC}$

**MCQ 17:** Name the line represented in this figure:




**Choose all correct answers:**

- ☐ $\overleftrightarrow{AB}$
- ☐ $\overleftrightarrow{AC}$
- ☐ $\overleftrightarrow{BC}$

## B.3 DRAWING LINES, SEGMENTS AND RAYS

**Ex 18:** Using a ruler and pencil, draw a straight line passing through points $A$ and $B$. Label both points clearly.

**Ex 19:** Using a ruler and pencil, draw a line segment passing through points $A$ and $B$. Label both points clearly.

**Ex 20:** Using a ruler and pencil, draw a ray passing through points $A$ and $B$. Label both points clearly.

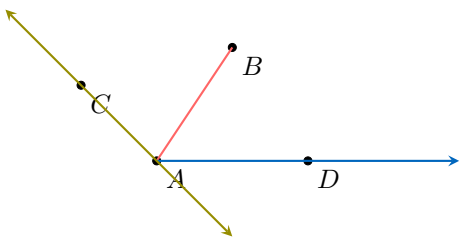
## B.4 CHECKING A CONSTRUCTION PROGRAM

**MCQ 21:** A teacher gives these construction steps:

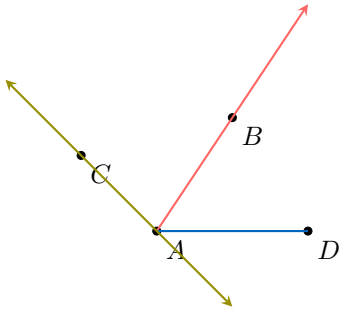
1. Draw points $A$, $B$, $C$, and $D$
2. Draw segment $\overline{AB}$
3. Draw line $\overleftrightarrow{AC}$
4. Draw ray $\overrightarrow{AD}$

Which student followed the instructions correctly? **Select the correct answer:**

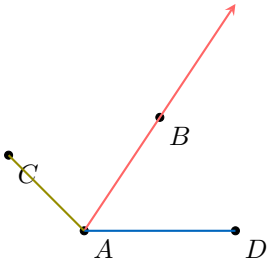
- ☐ Hugo



☐ Louis




☐ Vincent

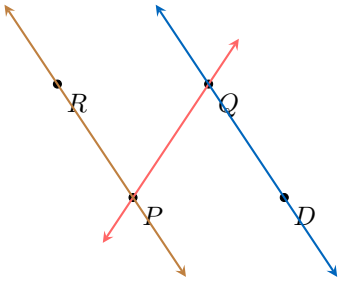



**MCQ 22:** A teacher gives these construction steps:

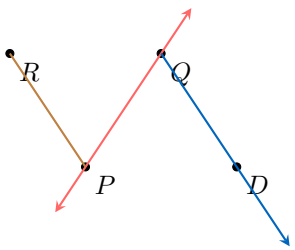
1. Draw points $P$, $Q$, $R$, and $D$
2. Draw segment $\overline{PR}$
3. Draw line $\overleftrightarrow{PQ}$
4. Draw ray $\overrightarrow{QD}$

Which student followed the instructions correctly?**Select the correct answer:**

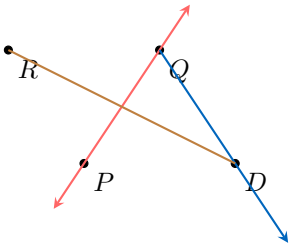
☐ Hugo




☐ Louis




☐ Vincent

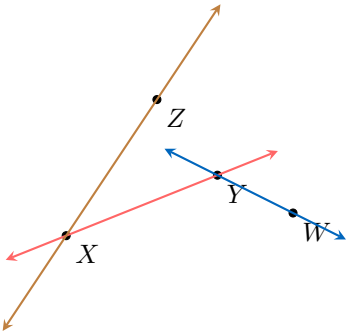



**MCQ 23:** A teacher gives these construction steps:

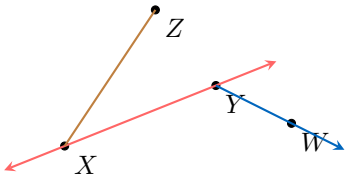
1. Draw points $X$, $Y$, $Z$, and $W$
2. Draw segment $\overline{XZ}$
3. Draw line $\overleftrightarrow{XY}$
4. Draw ray $\overrightarrow{YW}$

Which student followed the instructions correctly?**Select the correct answer:**

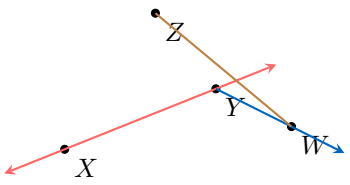
☐ Hugo




☐ Louis




☐ Vincent



### B.5 BUILDING GEOMETRIC FIGURES

**Ex 24:** Using a ruler and pencil, draw three points $A$, $B$, and $C$, and the straight line $\overleftrightarrow{AB}$.

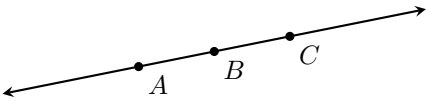
**Ex 25:** Using a ruler and pencil, draw three points $A$, $B$, and $C$, and the line segment $\overline{AC}$.

**Ex 26:** Using a ruler and pencil, draw three points $A$, $B$, and $C$, and the line segments $\overline{AB}$, $\overline{BC}$, and $\overline{CA}$.

## C ELEMENT RELATION

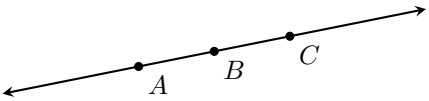
### C.1 IDENTIFYING POINTS ON GEOMETRIC FIGURES

**Ex 27:** Does point $C$ lie on the line through points $A$ and $B$?



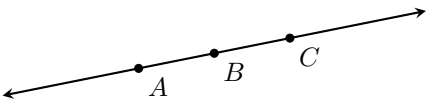

$C$ $\square \in$ / $\square \notin$ $\overleftrightarrow{AB}$

**Ex 28:** Does point $C$ lie on the ray from $A$ through $B$?



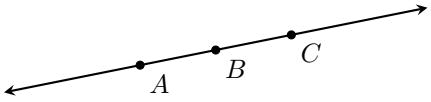

$C$ $\square \in$ / $\square \notin$ $\overrightarrow{AB}$

**Ex 29:** Does point $C$ lie on the ray from $B$ through $A$?



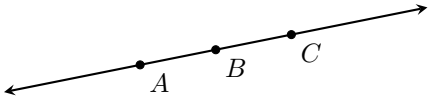

$C$ $\square \in$ / $\square \notin$ $\overrightarrow{BA}$

**Ex 30:** Does point $C$ lie on the line segment between $B$ and $A$?



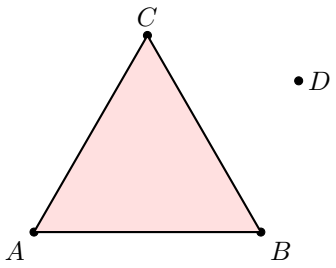

$C$ $\square \in$ / $\square \notin$ $\overline{BA}$

**Ex 31:** Does point $B$ lie on the line segment between $A$ and $C$?



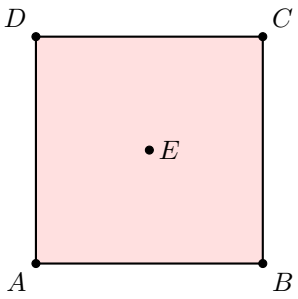

$B$ $\square \in$ / $\square \notin$ $\overline{AC}$

**Ex 32:** Does point $D$ lie on triangle $ABC$?




$D$ $\square \in$ / $\square \notin$ $\triangle ABC$

**Ex 33:** Does point $E$ lie on square $ABCD$?

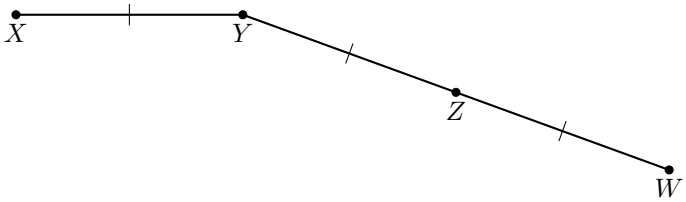



$E$ $\square \in$ / $\square \notin$ $\square ABCD$

## D LENGTH

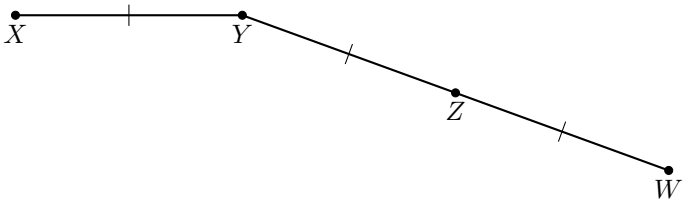
### D.1 USING TICK MARKS TO CALCULATE LENGTHS

**Ex 34:** The segment $\overline{XY}$ measures 3 cm. Use the tick marks to find the length of segment $\overline{YZ}$.



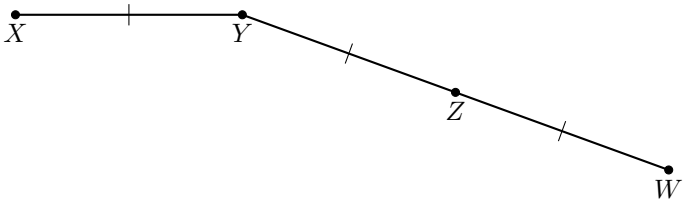

$YZ =$ ☐ cm

**Ex 35:** The segment $\overline{XY}$ measures 3 cm. Use the tick marks to find the length of segment $\overline{ZW}$.




$ZW =$ ☐ cm

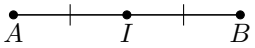
**Ex 36:** The segment $\overline{XY}$ measures 3 cm. Use the tick marks to find the length of segment $\overline{YW}$.




$YW =$ ☐ cm

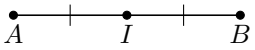
## D.2 CALCULATE LENGTHS USING A MIDPOINT

**Ex 37:** The segment $\overline{AI}$ measures 3 cm. Use the tick marks to find the length of segment $\overline{AB}$.



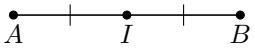

$AB =$ ☐ cm

**Ex 38:** The segment $\overline{IB}$ measures 10 cm. Use the tick marks to find the length of segment $\overline{AB}$.



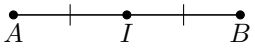

$AB =$ ☐ cm

**Ex 39:** The segment $\overline{AB}$ measures 10 cm. Use the tick marks to find the length of segment $\overline{AI}$.




$AI =$ ☐ cm

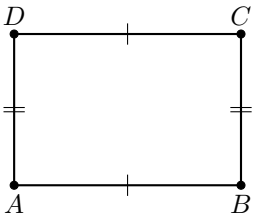
**Ex 40:** The segment $\overline{AB}$ measures 20 cm. Use the tick marks to find the length of segment $\overline{AI}$.




$AI =$ ☐ cm

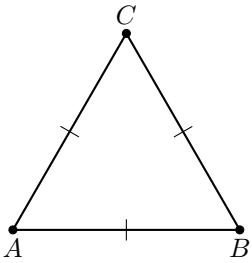
## D.3 USING TICK MARKS TO FIND PERIMETER

**Ex 41:** The segment $\overline{AB}$ measures 3 cm and segment $\overline{BC}$ measures 2 cm. Use the tick marks to find the perimeter of rectangle $ABCD$.



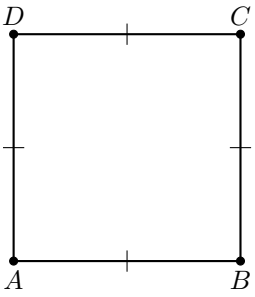

Perimeter of $\square ABCD =$ ☐ cm

**Ex 42:** The segment $\overline{AB}$ measures 3 cm. Use the tick marks to find the perimeter of triangle $ABC$.




Perimeter of $\triangle ABC =$ ☐ cm

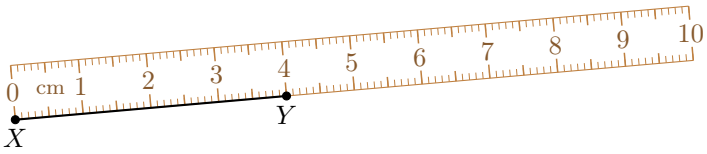
**Ex 43:** The segment $\overline{AB}$ measures 3 cm. Use the tick marks to find the perimeter of square $ABCD$.




Perimeter of $\square ABCD =$ ☐ cm

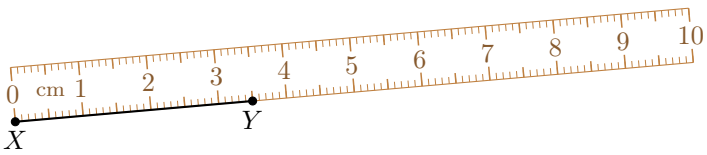
## D.4 MEASURING WITH A RULER

**Ex 44:** Measure the length of segment $\overline{XY}$ using the ruler shown.



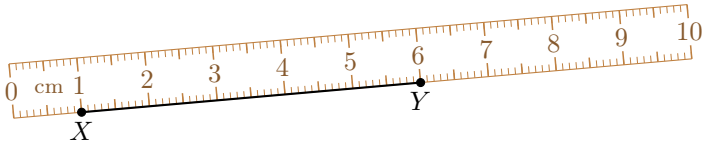

$XY =$ ☐ cm

**Ex 45:** Measure the length of segment $\overline{XY}$ using the ruler shown.



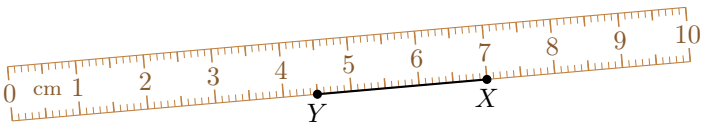

$XY =$ ☐ cm

**Ex 46:** Measure the length of segment $\overline{XY}$ using the ruler shown.




$XY =$ ☐ cm

**Ex 47:** Measure the length of segment $\overline{XY}$ using the ruler shown.

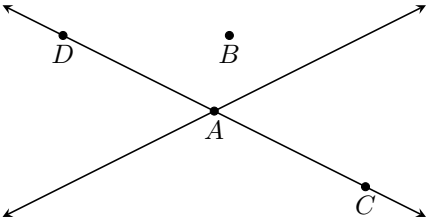



$XY =$ ☐ cm

# E INTERSECTION POINT

## E.1 PICKING THE INTERSECTION POINTS

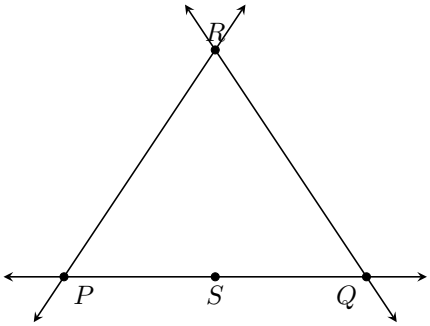
**MCQ 48:** Pick the point where the lines intersect.




**Choose one point:**

- ☐ $A$
- ☐ $B$
- ☐ $C$
- ☐ $D$

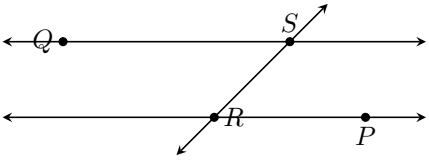
**MCQ 49:** Pick the points where the lines intersect.




**Choose all correct points:**

- ☐ $P$
- ☐ $Q$
- ☐ $R$
- ☐ $S$

**MCQ 50:** Pick the points where the lines intersect.



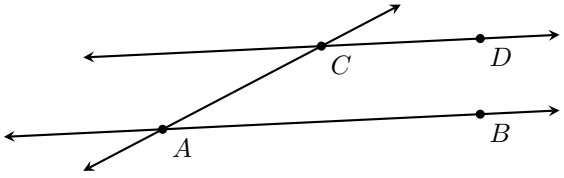

**Choose all correct points:**

- ☐ $P$
- ☐ $Q$
- ☐ $R$
- ☐ $S$

# F PARALLEL LINES

## F.1 IDENTIFYING PARALLEL LINES

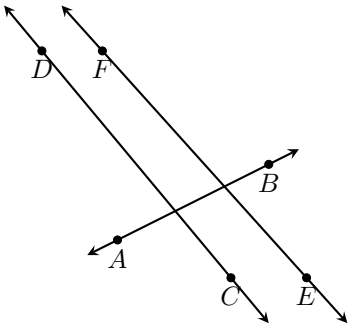
**MCQ 51:**




**Choose the true statement:**

- ☐ $\overleftrightarrow{AB}$ is parallel to $\overleftrightarrow{AC}$.
- ☐ $\overleftrightarrow{CD}$ is parallel to $\overleftrightarrow{AC}$.
- ☐ $\overleftrightarrow{CD}$ is parallel to $\overleftrightarrow{AB}$.

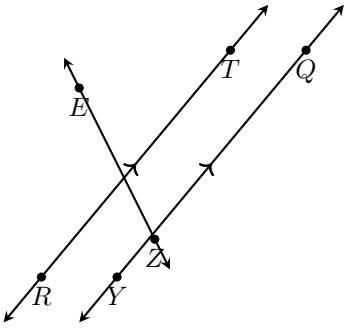
**MCQ 52:**




**Choose the true statement:**

- ☐ $\overleftrightarrow{AB}$ is parallel to $\overleftrightarrow{DC}$.
- ☐ $\overleftrightarrow{DC}$ is parallel to $\overleftrightarrow{FE}$.
- ☐ $\overleftrightarrow{AB}$ is parallel to $\overleftrightarrow{FE}$.

**MCQ 53:**

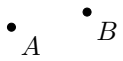



**Choose the true statement:**

- ☐ $\overleftrightarrow{ZE}$ is parallel to $\overleftrightarrow{RT}$.
- ☐ $\overleftrightarrow{ZE}$ is parallel to $\overleftrightarrow{YQ}$.
- ☐ $\overleftrightarrow{RT}$ is parallel to $\overleftrightarrow{YQ}$.

## F.2 COUNTING POSSIBLE LINES

**MCQ 54:** Can you find a line that passes through points $A$ and $B$ ? How many such lines are possible?

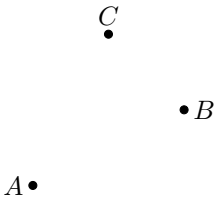



☐ 0

☐ 1

☐ Infinite

**MCQ 55:** Can you find a line that passes through points $A$, $B$, and $C$ together? How many such lines are possible?




☐ 0

☐ 1

☐ Infinite

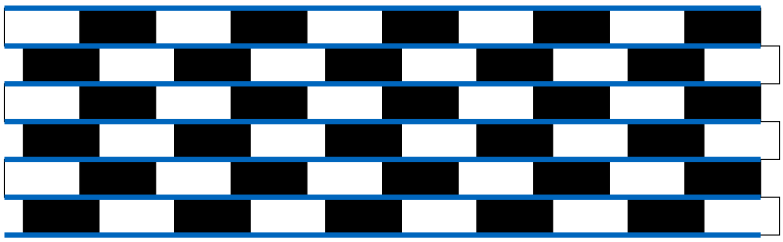
**MCQ 56:** Can you find a line that passes through point $A$? How many such lines are possible?


☐ 0

☐ 1

☐ Infinite

**MCQ 57:** Are the blue thick lines parallel?



☐ Yes

☐ No