



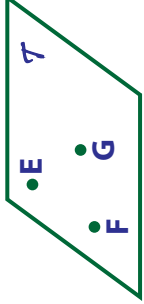


Name: _____

Date: _____






Points, Lines and Planes

	Description	Figure	Symbol
Point	A geometric element that has zero dimensions.		P or Point P
Line	A line is a collection of points along a straight path with no end points.		\overleftrightarrow{AB} or \overleftrightarrow{BA}
Line segment	A line segment is a part of a line that contains every point on the line between its end points.		\overline{XY} or \overline{YX}
Ray	A ray is a line with a single end point that goes on and on in one direction.		\overrightarrow{PQ}
Plane	A plane is a flat surface that extends to infinity.		Plane EFG or Plane τ

Name: _____

Date: _____

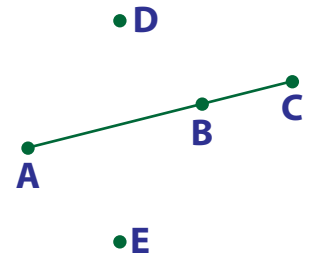
Points, Lines and Planes

Point	Line	Line segment	Ray	Plane
A point is a location determined by an ordered set of coordinates.	A line is a collection of points along a straight path with no end points.	A line segment is a piece or a part of a line in geometry.	A ray starts at one point and continues out to infinity.	A plane is a flat surface that is indefinitely large with zero thickness.
A point has zero dimensions.	A line has one dimension.	A line segment has one dimension.	A ray has one dimension.	A plane exists in two dimensions.
Diagrammatic representation: 	Diagrammatic representation: 	Diagrammatic representation: 	Diagrammatic representation: 	Diagrammatic representation: 
The symbolic representation of a point is P or Point P	The symbolic representation of a line is \overleftrightarrow{AB} or \overleftrightarrow{BA}	The symbolic representation of a line segment is \overline{XY} or \overline{YX}	The symbolic representation of a ray is \overrightarrow{PQ}	The symbolic representation of a point is Plane EFG or Plane \mathcal{T}

Collinear and Coplanar Chart

Collinear

Points which lie on the same line are called collinear.



ABC are collinear.

Non-collinear

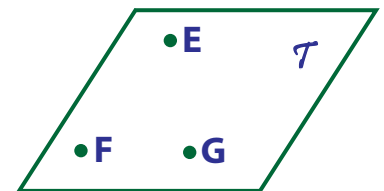
Points which do not lie on the same line are called non-collinear.



XYZ are non-collinear.

Coplanar

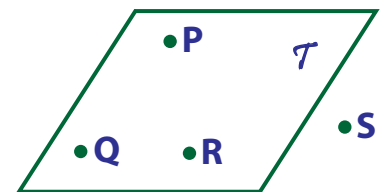
Points or lines which lie on the same plane are called coplanar.



E, F and G are coplanar.

Non-coplanar

Points or lines which do not lie on the same plane are called non-coplanar.



P, Q, R and S are non-coplanar.

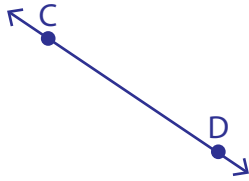
Points, Lines and Planes

Sheet 1

Part - A

Name each figure using symbols.

1)



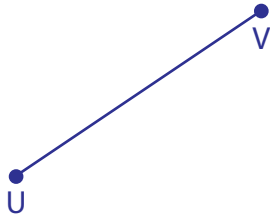
2)



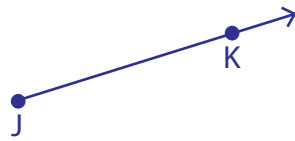
3)



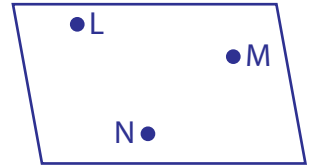
4)



5)



6)



Part - B

Draw and label each of the following.

1) \overleftrightarrow{PQ}

2) Points S and T

3) Plane EFGH

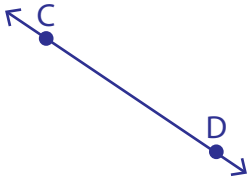
Points, Lines and Planes

Sheet 1

Part - A

Name each figure using symbols.

1)



\overleftrightarrow{CD} or \overleftrightarrow{DC}

2)



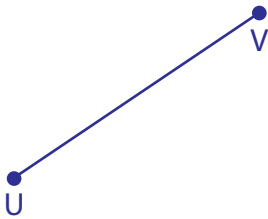
Plane \mathcal{A}

3)



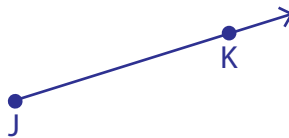
Point R

4)



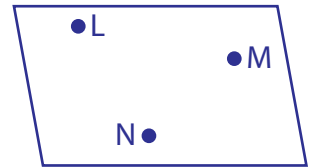
\overline{UV} or \overline{VU}

5)



\overrightarrow{JK}

6)



Plane LMN

Part - B

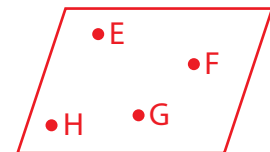
Draw and label each of the following.

1) \overleftrightarrow{PQ} 

2) Points S and T



3) Plane EFGH

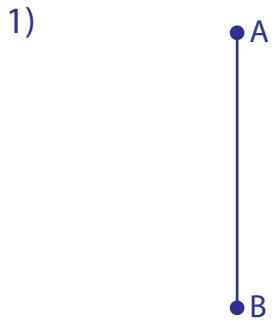


Points, Lines and Planes

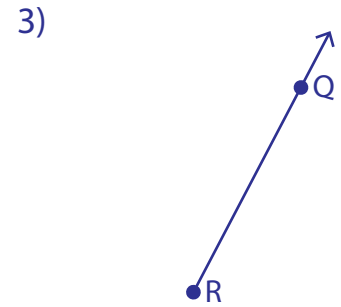
Sheet 2

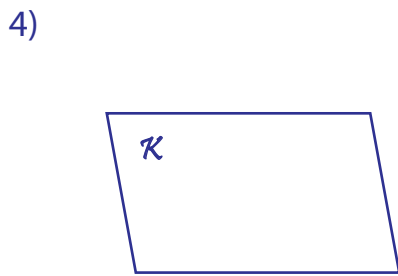
Part - A

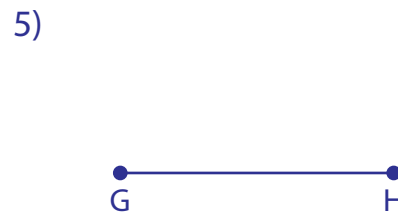
Name each figure using symbols.

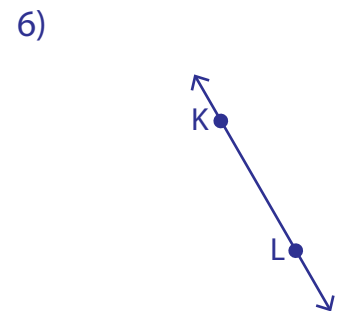












Part - B

Draw and label each of the following.

1) \overrightarrow{VW} 2) Plane \mathcal{K} 3) \overleftrightarrow{MN}

Points, Lines and Planes

Sheet 2

Part - A

Name each figure using symbols.

1)



\overline{AB} or \overline{BA}

2)



Points X, Y and Z

3)



\overrightarrow{RQ}

4)



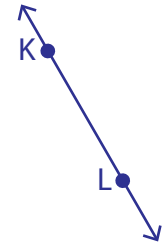
Plane κ

5)



\overline{GH} or \overline{HG}

6)



\overleftrightarrow{KL} or \overleftrightarrow{LK}

Part - B

Draw and label each of the following.

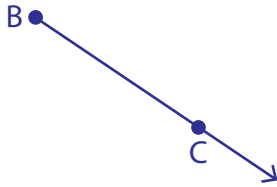
1) \overrightarrow{VW} 2) Plane κ 3) \overleftrightarrow{MN} 

Points, Lines and Planes

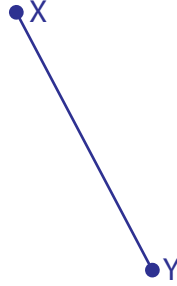
Part - A

Name each figure using symbols.

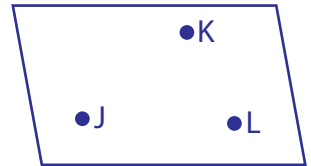
1)



2)



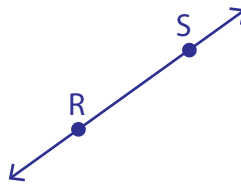
3)



4)



5)



6)



Part - B

Draw and label each of the following.

1) Plane \mathcal{N} 2) \overleftrightarrow{LM} 3) \overline{PQ}

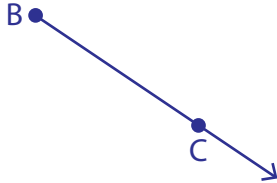
Points, Lines and Planes

Sheet 3

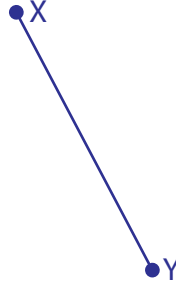
Part - A

Name each figure using symbols.

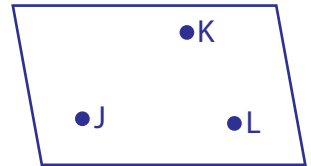
1)

 \overrightarrow{BC}

2)

 \overline{XY} or \overline{YX}

3)



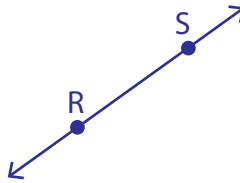
Plane JKL

4)



Points M and N

5)

 \overleftrightarrow{RS} or \overleftrightarrow{SR}

6)

 \overleftrightarrow{EF} **Part - B**

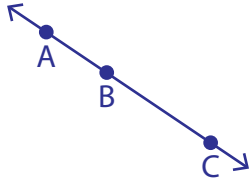
Draw and label each of the following.

1) Plane \mathcal{N} 2) \overleftrightarrow{LM} 3) \overline{PQ} 

Collinear and non-collinear points

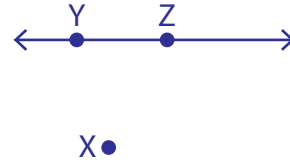
A) Write whether the given points are collinear or not collinear.

1)



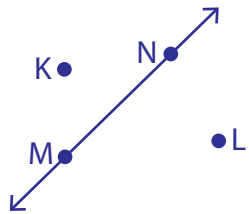
Points A, B and C _____

2)



Points X, Y and Z _____

3)



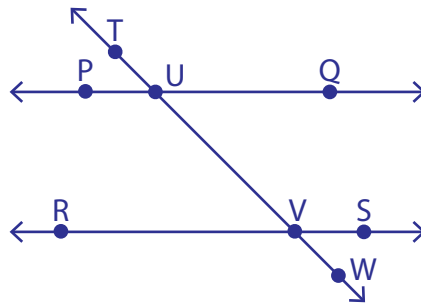
Points K, L, M and N _____

4)



Points E, F and G _____

B) Write true or false.



a) Points T, U and V are collinear. _____

b) Point U is collinear with the points R and S. _____

c) Points S, R and Q are not collinear. _____

d) Points P, R and U are collinear. _____

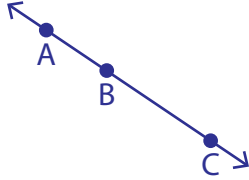
e) Point S is not collinear to \overleftrightarrow{TW} and collinear with the point V. _____

Collinear and non-collinear points

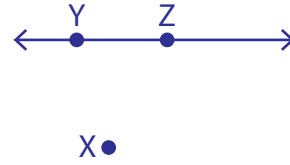
Sheet 1

A) Write whether the given points are collinear or not collinear.

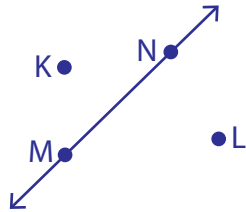
1)

Points A, B and C collinear

2)

Points X, Y and Z not collinear

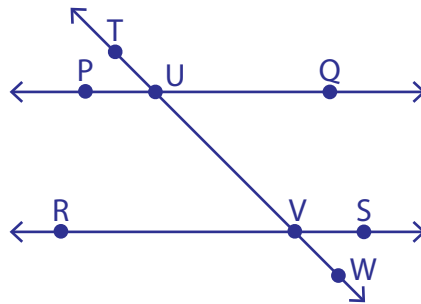
3)

Points K, L, M and N not collinear

4)

Points E, F and G collinear

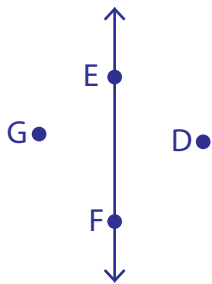
B) Write true or false.

a) Points T, U and V are collinear. Trueb) Point U is collinear with the points R and S. Falsec) Points S, R and Q are not collinear. Trued) Points P, R and U are collinear. Falsee) Point S is not collinear to \overleftrightarrow{TW} and collinear with the point V. True

Collinear and non-collinear points

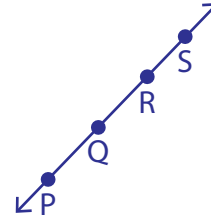
A) Write whether the given points are collinear or not collinear.

1)



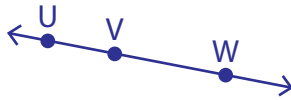
Points D, E, F and G _____

2)



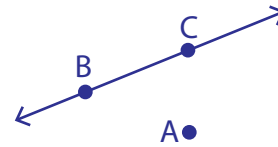
Points P, Q, R and S _____

3)



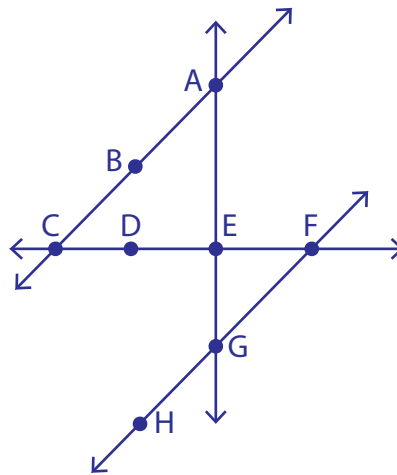
Points U, V and W _____

4)



Points A, B and C _____

B) Write true or false.



a) Points C, D and E are not collinear. _____

b) Point C is not collinear to \overleftrightarrow{GF} and collinear to \overleftrightarrow{DE} . _____

c) Points A, C and F are collinear. _____

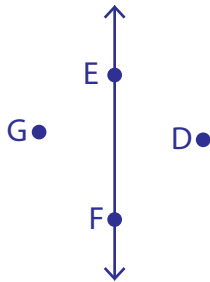
d) Point G is collinear with \overleftrightarrow{FH} and \overleftrightarrow{AE} . _____

e) Points A and B are not collinear. _____

Collinear and non-collinear points

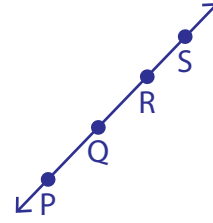
A) Write whether the given points are collinear or not collinear.

1)



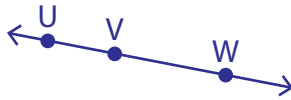
Points D, E, F and G not collinear

2)



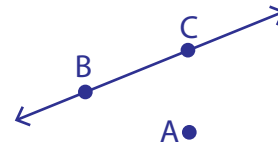
Points P, Q, R and S collinear

3)



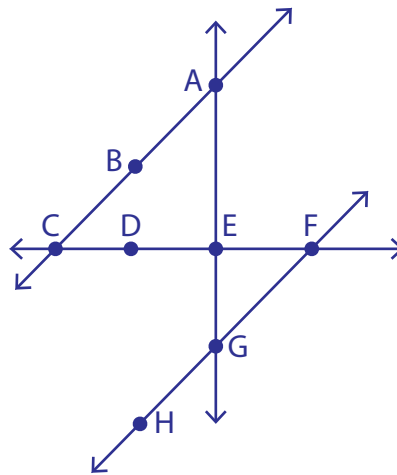
Points U, V and W collinear

4)



Points A, B and C not collinear

B) Write true or false.



a) Points C, D and E are not collinear. False

b) Point C is not collinear to \overleftrightarrow{GF} and collinear to \overleftrightarrow{DE} . True

c) Points A, C and F are collinear. False

d) Point G is collinear with \overleftrightarrow{FH} and \overleftrightarrow{AE} . True

e) Points A and B are not collinear. False

Collinear and non-collinear points

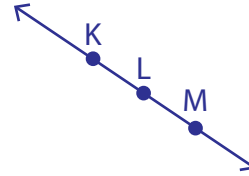
A) Write whether the given points are collinear or not collinear.

1)



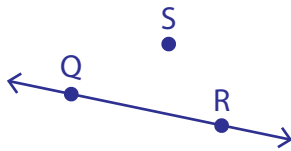
Points F, G and H _____

2)



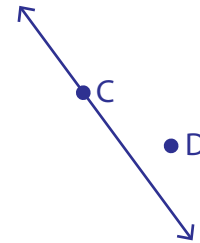
Points K, L and M _____

3)



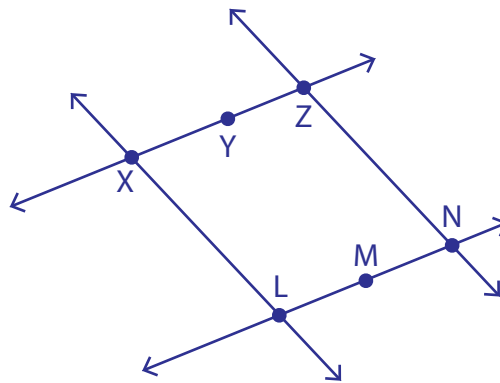
Points Q, R and S _____

4)



Points C and D _____

B) Write true or false.



a) Point Y is not collinear with the points L and N. _____

b) Points M and N are collinear with X. _____

c) Point M is not collinear to \overleftrightarrow{LN} . _____

d) Points X, Y and Z are collinear. _____

e) Point N is collinear to \overleftrightarrow{LM} and not collinear with the point Y. _____

Collinear and non-collinear points

A) Write whether the given points are collinear or not collinear.

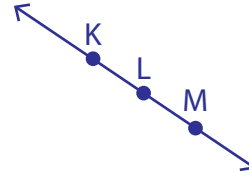
1)



Points F, G and H

collinear

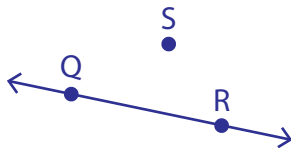
2)



Points K, L and M

collinear

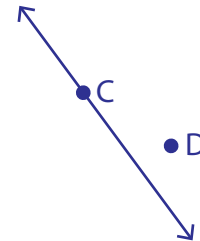
3)



Points Q, R and S

not collinear

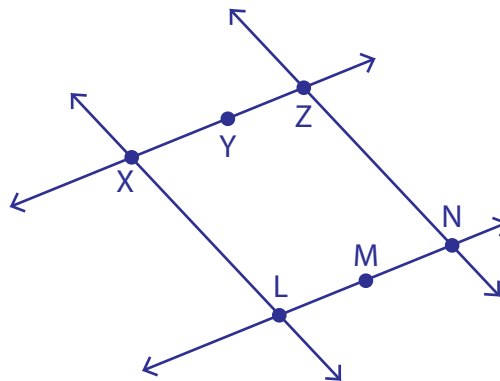
4)



Points C and D

not collinear

B) Write true or false.



a) Point Y is not collinear with the points L and N.

True

b) Points M and N are collinear with X.

False

c) Point M is not collinear to \overleftrightarrow{LN} .

False

d) Points X, Y and Z are collinear.

True


e) Point N is collinear to \overleftrightarrow{LM} and not collinear with the point Y.

True

Points and Planes

Sheet 1


A) Does the given set of points determine a plane? Circle yes or no.

1) 

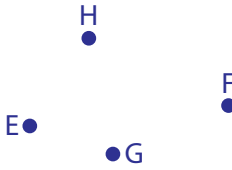
Yes No

2) 

Yes No


3) 

Yes No

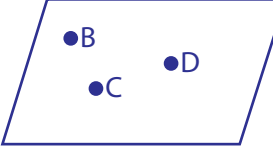
4) 

Yes No


B) Choose whether the points on the plane are coplanar or not coplanar.

1) 


a) Not coplanar
b) Coplanar

2) 

a) Not coplanar
b) Coplanar

3) 

a) Coplanar
b) Not coplanar

4) 

a) Coplanar
b) Not coplanar

C) Draw and label each of the following.

1) Three coplanar points D, E and F in plane \mathcal{R}

2) Points W, X, Y and Z are collinear in plane \mathcal{A}

Points and Planes

Sheet 1

A) Does the given set of points determine a plane? Circle yes or no.

1)



Yes

No

2)



Yes

No

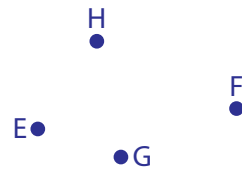
3)



Yes

No

4)



Yes

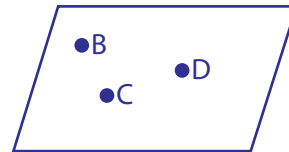
No

B) Choose whether the points on the plane are coplanar or not coplanar.

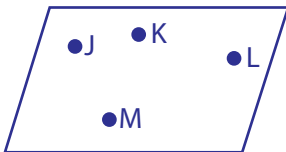
1)

 a) Not coplanar b) Coplanar

2)

 a) Not coplanar b) Coplanar

3)

 a) Coplanar b) Not coplanar

4)

 a) Coplanar b) Not coplanar

C) Draw and label each of the following.

1) Three coplanar points D, E and F in plane \mathcal{R} 2) Points W, X, Y and Z are collinear in plane \mathcal{A} 

Points and Planes

A) Does the given set of points determine a plane? Circle yes or no.

1)



Yes

No

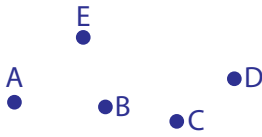
2)



Yes

No

3)



Yes

No

4)



Yes

No

B) Choose whether the points on the plane are coplanar or not coplanar.

1)



a) Coplanar

b) Not coplanar

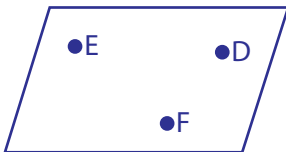
2)



a) Coplanar

b) Not coplanar

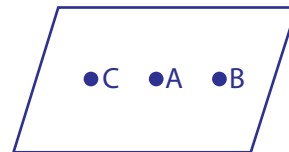
3)



a) Not coplanar

b) Coplanar

4)



a) Not coplanar

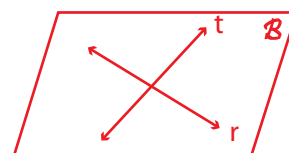
b) Coplanar

C) Draw and label each of the following.

1) Point R which is not coplanar to points P and Q in plane \mathcal{M}



2) Coplanar lines t and r in plane \mathcal{B}



Points and Planes

Sheet 3

A) Does the given set of points determine a plane? Circle yes or no.

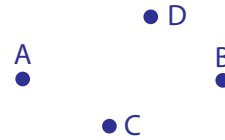
1)



Yes

No

2)



Yes

No

3)



Yes

No

4)

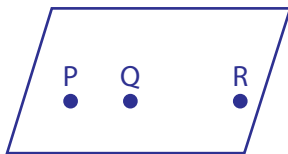


Yes

No

B) Choose whether the points on the plane are coplanar or not coplanar.

1)



a) Coplanar

b) Not coplanar

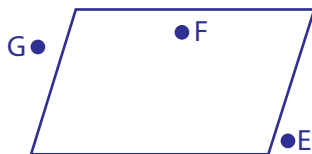
2)



a) Coplanar

b) Not coplanar

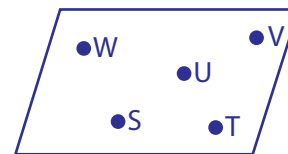
3)



a) Not coplanar

b) Coplanar

4)



a) Not coplanar

b) Coplanar

C) Draw and label each of the following.

1) Two parallel lines m and n that determine a plane \mathcal{V}

2) Three not coplanar, collinear points

Points and Planes

Sheet 3

A) Does the given set of points determine a plane? Circle yes or no.

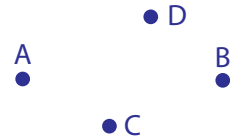
1)



Yes

No

2)



Yes

No

3)

X

Yes

No

4)

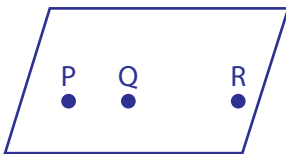


Yes

No

B) Choose whether the points on the plane are coplanar or not coplanar.

1)



a) Coplanar

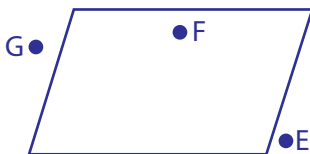
 b) Not coplanar

2)

 a) Coplanar

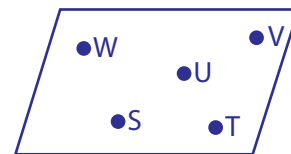
b) Not coplanar

3)

 a) Not coplanar

b) Coplanar

4)

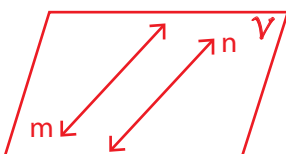


a) Not coplanar

 b) Coplanar

C) Draw and label each of the following.

1) Two parallel lines m and n that determine a plane \mathcal{V}



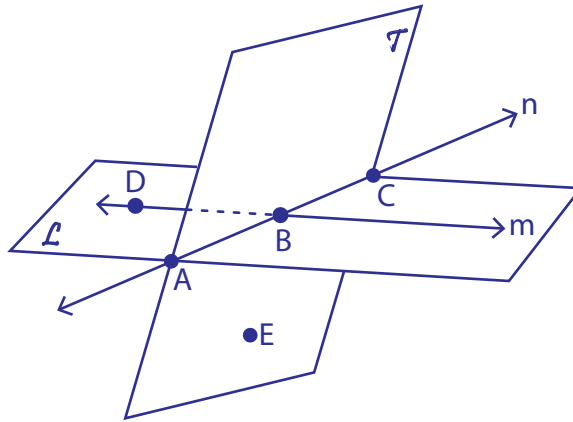
2) Three not coplanar, collinear points



Points, Lines and Planes

Observe the figure and answer the following.

1)



a) Name the planes.

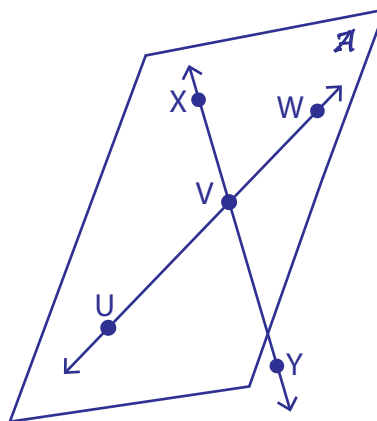
b) Write all the points on the plane \mathcal{L} .

c) Write a set of points which are not collinear in plane \mathcal{T} .

d) Write any three points which are coplanar in plane \mathcal{T} .

e) At which line do the planes \mathcal{L} and \mathcal{T} intersect?

2)



a) Name any two line segments.

b) Which point is not coplanar with the points U and V?

c) Write a set of points which are collinear.

d) Name a pair of opposite rays.

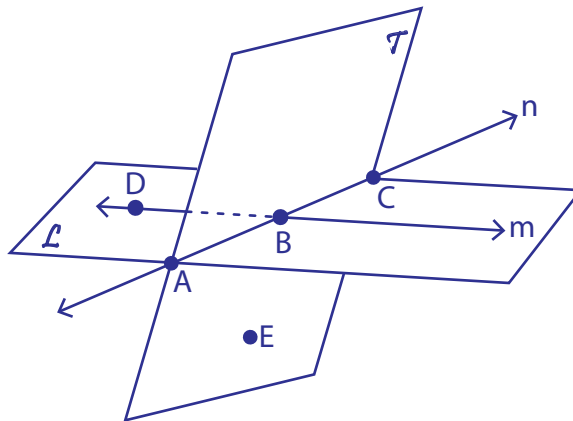
e) Name the plane in two ways.

Points, Lines and Planes

Sheet 1

Observe the figure and answer the following.

1)



- Name the planes.
- Write all the points on the plane \mathcal{L} .
- Write a set of points which are not collinear in plane \mathcal{T} .
- Write any three points which are coplanar in plane \mathcal{T} .
- At which line do the planes \mathcal{L} and \mathcal{T} intersect?

Plane \mathcal{T} and Plane \mathcal{L}

Points A, B, C and D

- Write a set of points which are not collinear in plane \mathcal{T} .

Points B, C and E

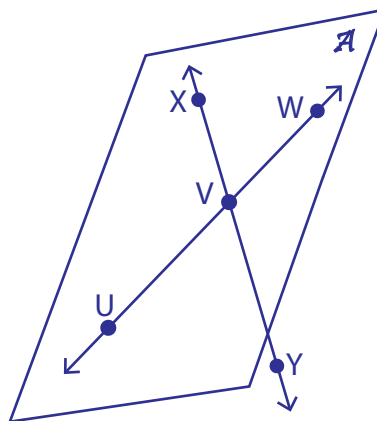
- Write any three points which are coplanar in plane \mathcal{T} .

Points A, B and E

- At which line do the planes \mathcal{L} and \mathcal{T} intersect?

Line n

2)



- Name any two line segments.
- Which point is not coplanar with the points U and V?
- Write a set of points which are collinear.
- Name a pair of opposite rays.
- Name the plane in two ways.

\overline{XY} and \overline{UW}

Point Y

Points U, V and W

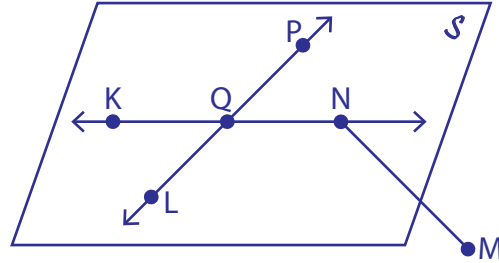
\overrightarrow{VX} and \overrightarrow{VY}

Plane \mathcal{A} and Plane UVWX

Points, Lines and Planes

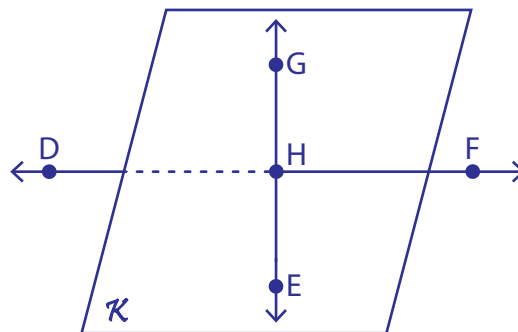
Observe the figure and answer the following.

1)



- a) Name the points on the line \overleftrightarrow{KN} .
- b) Write the coplanar lines.
- c) Name any two line segments.
- d) Write a set of points which are collinear.
- e) Write any two points which are coplanar with L and N.

2)



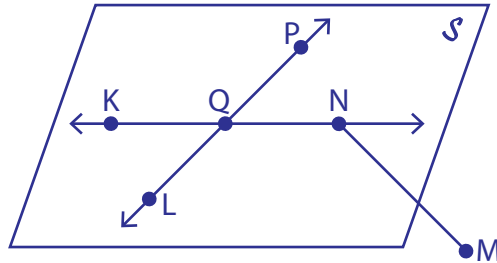
- a) Which are the points that are not collinear with the points G and H?
- b) Name a pair of opposite rays.
- c) Name all the points.
- d) Name all the lines.
- e) Write a set of points which are not coplanar.

Points, Lines and Planes

Sheet 2

Observe the figure and answer the following.

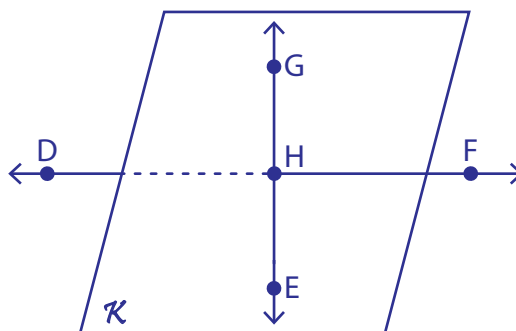
1)



- a) Name the points on the line \overleftrightarrow{KN} .
- b) Write the coplanar lines.
- c) Name any two line segments.
- d) Write a set of points which are collinear.
- e) Write any two points which are coplanar with L and N.

Points K, Q and N **\overleftrightarrow{LP} and \overleftrightarrow{KN}** **\overline{QN} and \overline{NM}** **Points L, Q and P****Points Q and P**

2)



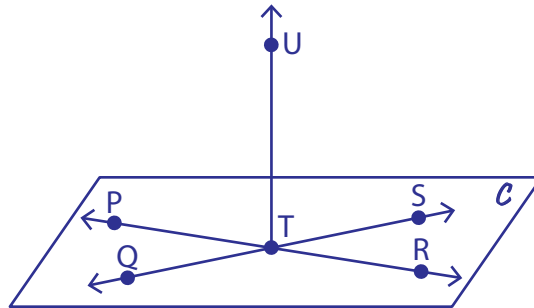
- a) Which are the points that are not collinear with the points G and H?
- b) Name a pair of opposite rays.
- c) Name all the points.
- d) Name all the lines.
- e) Write a set of points which are not coplanar.

Points F and D **\overrightarrow{HG} and \overrightarrow{HE}** **Points D, E, F, G and H** **\overleftrightarrow{DF} and \overleftrightarrow{GE}** **Points G, H and E**

Points, Lines and Planes

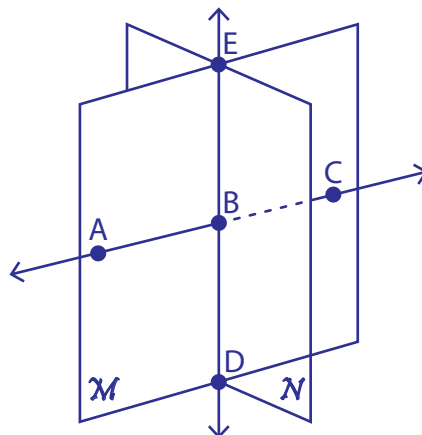
Observe the figure and answer the following.

1)



- a) Which point is collinear with the point Q and point T? _____
- b) Name any two line segments. _____
- c) Write a set of points which are not coplanar. _____
- d) Write the coplanar lines. _____
- e) Name the plane in two ways. _____

2)



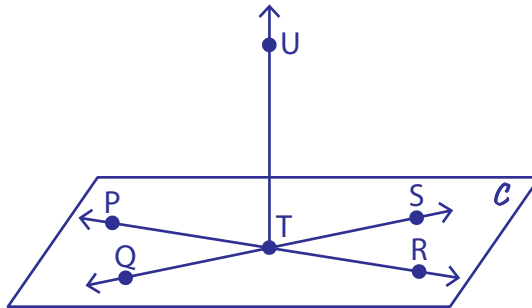
- a) Write all the points on the plane \mathcal{M} . _____
- b) At which line do the planes \mathcal{M} and \mathcal{N} intersect? _____
- c) Write a set of points which are coplanar in plane \mathcal{M} . _____
- d) Which are the points that are not collinear with the points A and B? _____
- e) Name the points on \overleftrightarrow{AC} . _____

Points, Lines and Planes

Sheet 3

Observe the figure and answer the following.

1)



- Which point is collinear with the point Q and point T?
- Name any two line segments.
- Write a set of points which are not coplanar.
- Write the coplanar lines.
- Name the plane in two ways.

Point S

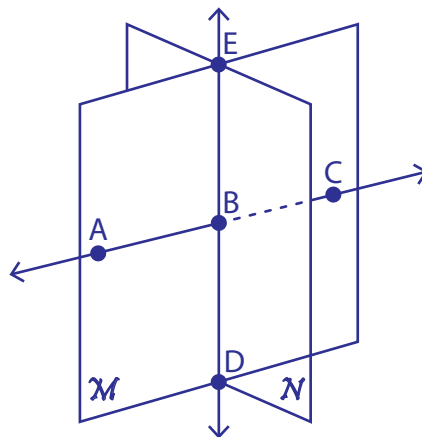
\overline{QT} and \overline{PT}

Points S, R and U

\overleftrightarrow{PR} and \overleftrightarrow{QS}

Plane C and Plane PQRST

2)



- Write all the points on the plane \mathcal{M} .
- At which line do the planes \mathcal{M} and \mathcal{N} intersect?
- Write a set of points which are coplanar in plane \mathcal{M} .
- Which are the points that are not collinear with the points A and B?
- Name the points on \overleftrightarrow{AC} .

Points A, B, C, D and E

\overleftrightarrow{DE}

Points A, B and D

Points E and D

Points A, B and C
