

Worksheet: Points, Lines, and Planes



In this worksheet, we will practice identifying and modeling geometric concepts like points, lines, and planes along with their properties.

Q1: State whether the following is true or false: Two coplanar lines perpendicular to the same line will always intersect each other.

A true

B false

Q2: Complete the following: Two skew lines are two lines that ___.

A are parallel

B lie in the same plane and have a common point

C do not lie in the same plane and do not intersect

D intersect but do not lie in the same plane

E lie in the same plane and do not have a common point



Question Video

Q3: How many planes can pass through three non-collinear points?

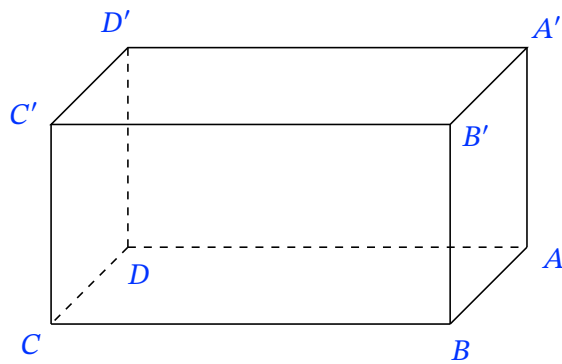
A an infinite number

B 3

C 2

D 1

Q5: What is the intersection of the plane through $ABB'A'$ and the plane through $BCC'B'$?



- F $\overleftrightarrow{A'B'}$
- G \overleftrightarrow{AB}
- H $\overleftrightarrow{BB'}$
- I \emptyset

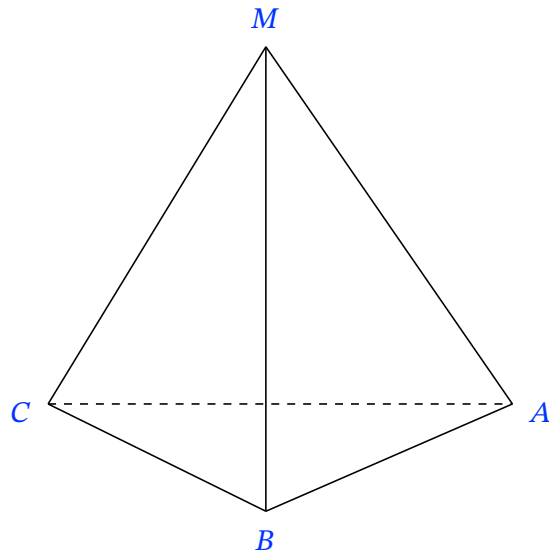
Q6: Complete the following: Two intersecting lines are two lines that ___.

- A lie in the same plane and have a common point
- B are parallel
- C are perpendicular
- D do not lie in the same plane
- E lie in the same plane and do not have a common point

Q7: What is the intersection of planes MAB , MBC , and MAC ?

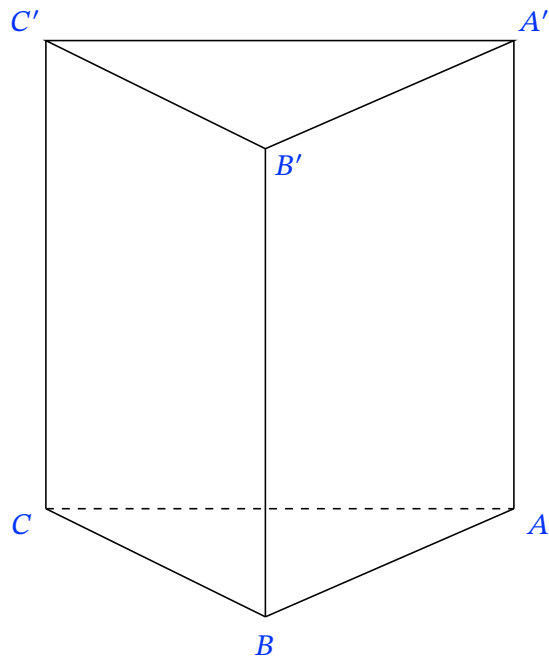


Question Video



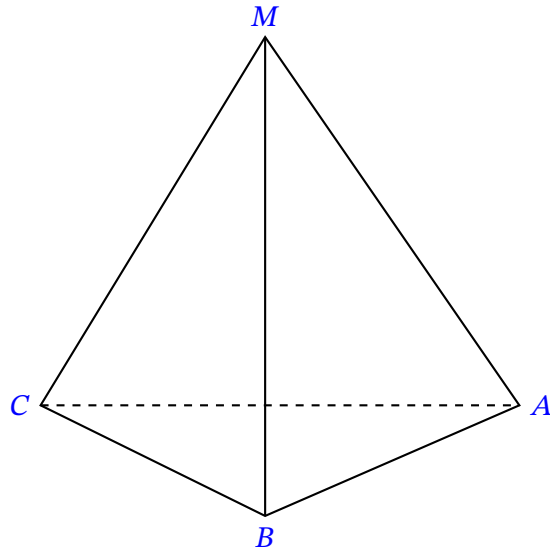
- A $\{M\}$
- B \overline{MB}
- C \emptyset
- D $\{B\}$

Q8: What is the intersection between segment $\overline{BB'}$ and the plane ABC ?



- A $\{B\}$
- B $\{A\}$
- C \overline{AB}
- D $\overline{BB'}$

Q9: What is the intersection of the planes MAB and MBC ?

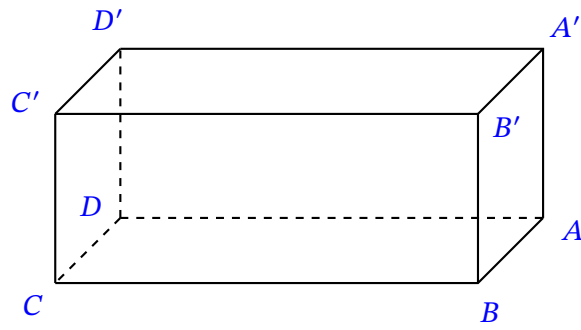


- A the plane MAC
- B \overleftrightarrow{MB}
- C the plane ABC
- D \overleftrightarrow{AC}

Q10: Determine the intersection of plane $DCC'D'$ and plane $ABCD$ and plane $ADD'A'$.

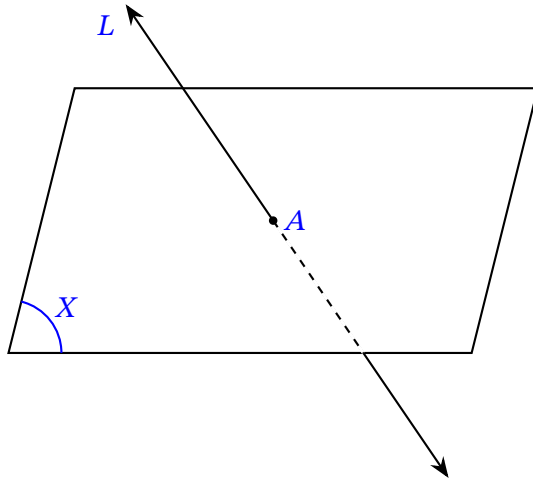


Question Video



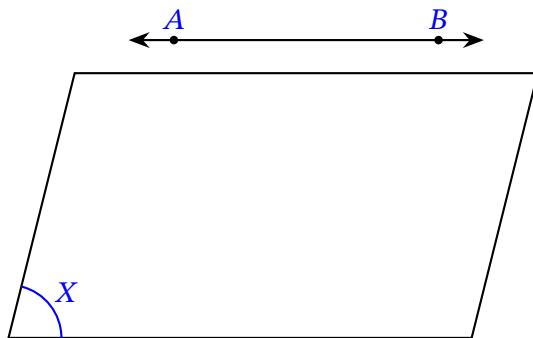
- A $\{D\}$
- B $\{C\}$
- C \overleftrightarrow{AD}
- D \overleftrightarrow{CD}

Q11: Observe the following figure and choose.



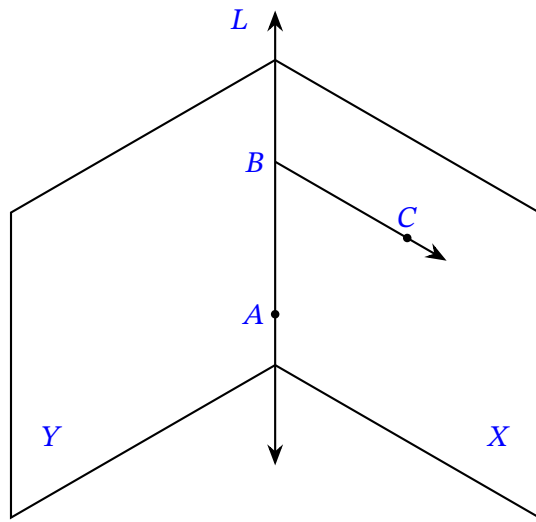
- A The straight line is contained within the plane.
- B The straight line is intersected with the plane.
- C The straight line is parallel to the plane.

Q12: Observe the following figure and choose.



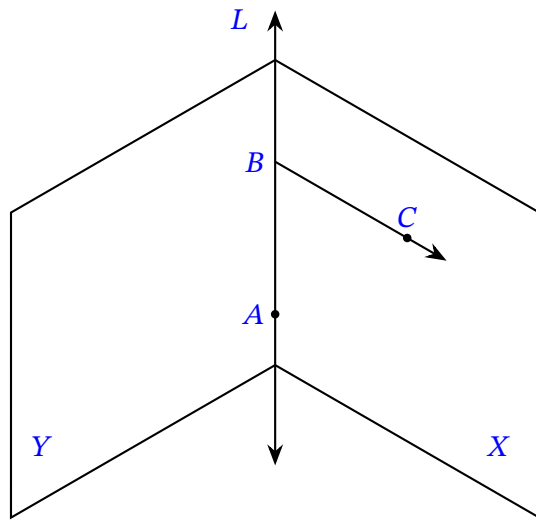
- A The straight line is parallel to the plane.
- B The straight line is intersected with the plane.
- C The straight line is contained within the plane.

Q13: X and Y are planes that intersect at line L . A is a point on line L and C is a point on plane X . Which of the following are true?



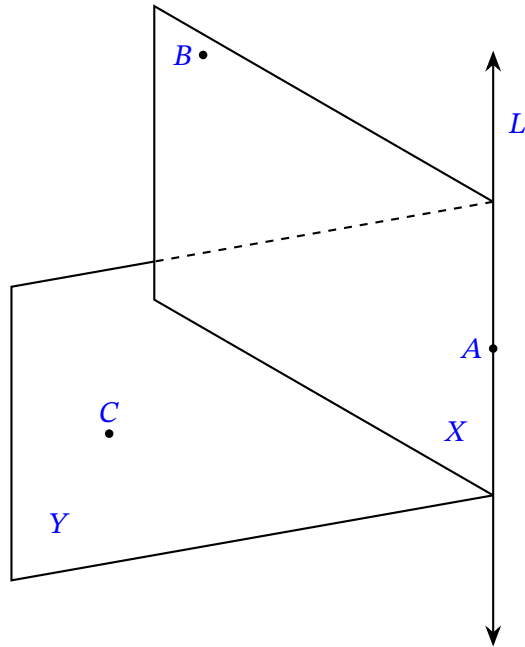
- A $C \in Y$
- B $C \subset Y$
- C $C \notin Y$
- D $C \notin X$

Q14: X and Y are planes that intersect at line L . A and B are points on line L and C is a point on plane X . Which of the following statements hold?



- A $\overrightarrow{BC} \in Y$
- B $\overrightarrow{BC} \notin X$
- C $\overrightarrow{BC} \notin Y$
- D $\overrightarrow{BC} \subset Y$

Q15: X and Y are planes that intersect at line L . B is a point on plane X and C is a point on plane Y . Determine the intersection of plane Y with plane ABC .

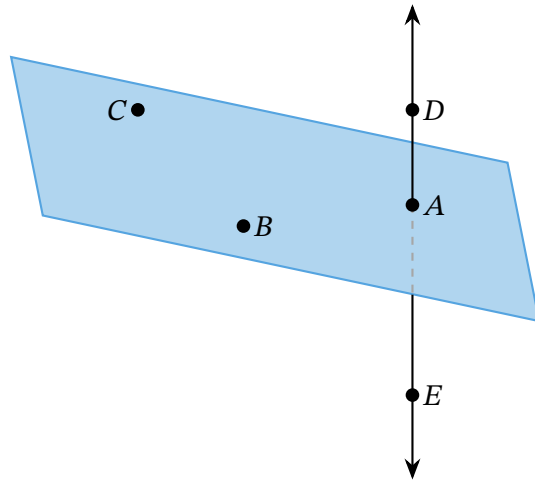


- A \overleftrightarrow{AB}
- B $\{A\}$
- C \vec{L}
- D \overleftrightarrow{AC}

Q16: Complete: If \vec{L} is parallel to the plane X , then $\vec{L} \cap X = \underline{\hspace{1cm}}$.

- A \emptyset
- B \vec{L}
- C X

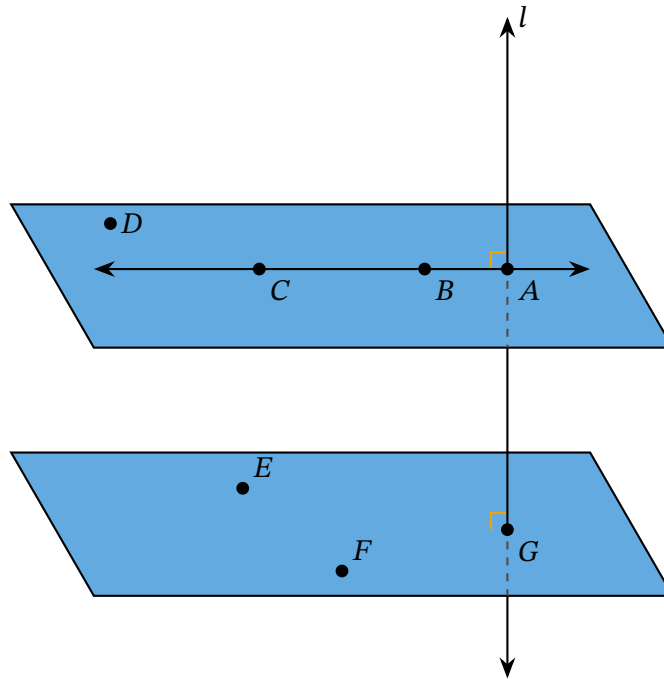
Q17: Describe what is shown in the figure.



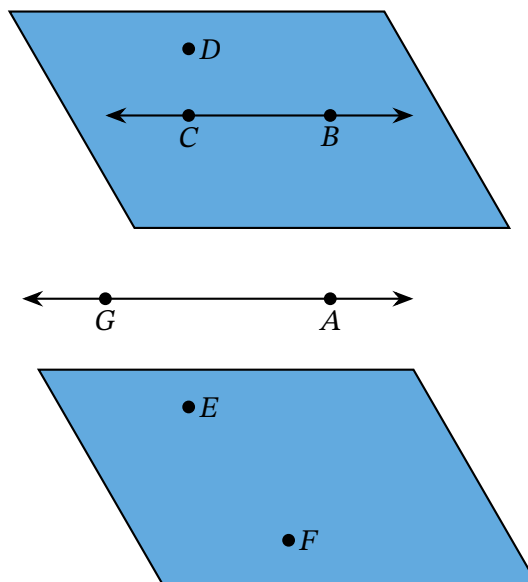
- A A plane ABC intersected by \overline{DE}
- B A plane ABC intersected by \overline{CB}
- C A plane BCD intersected by \overline{AE}

Q18: There are two parallel planes, ABD and EFG . A line l intersects the planes ABD and EFG at points A and G respectively. The plane ABD contains \overline{AC} . Which figure matches the description?

A

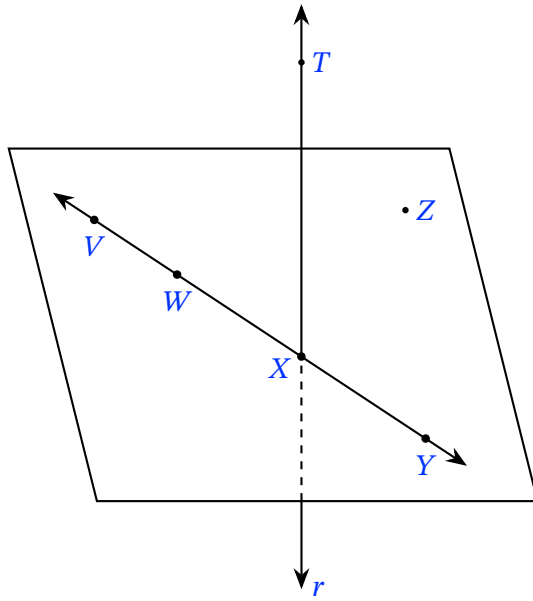


B



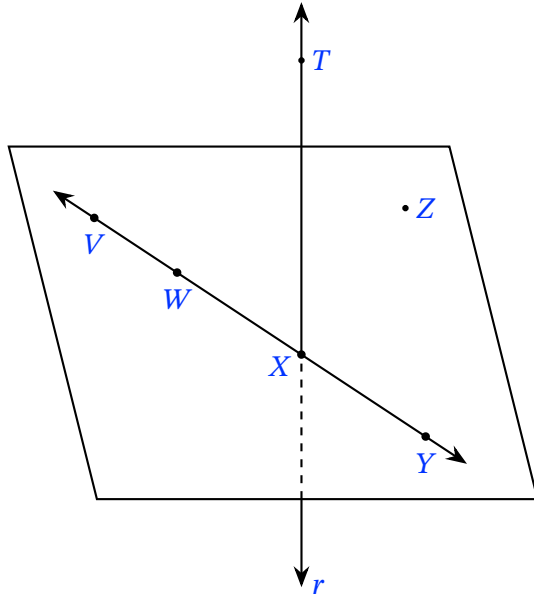
C

Q19: Which of the following is a line containing the point Y ?



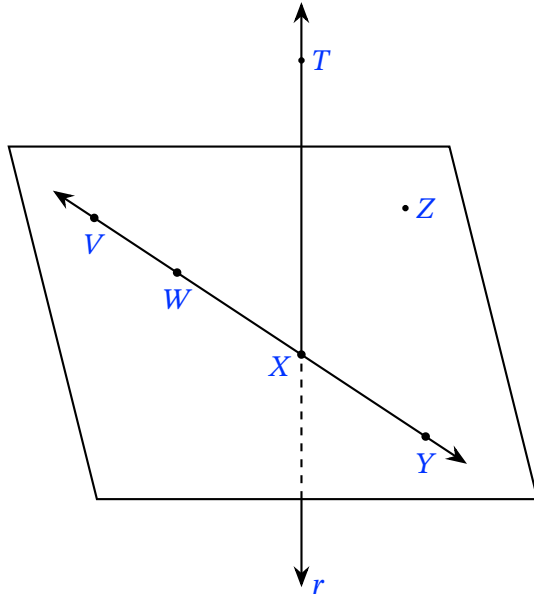
- A \overleftrightarrow{XZ}
- B \overleftrightarrow{TX}
- C \overleftrightarrow{TW}
- D \overleftrightarrow{VW}
- E \overleftrightarrow{VZ}

Q20: Which of the following is a line containing the point T ?



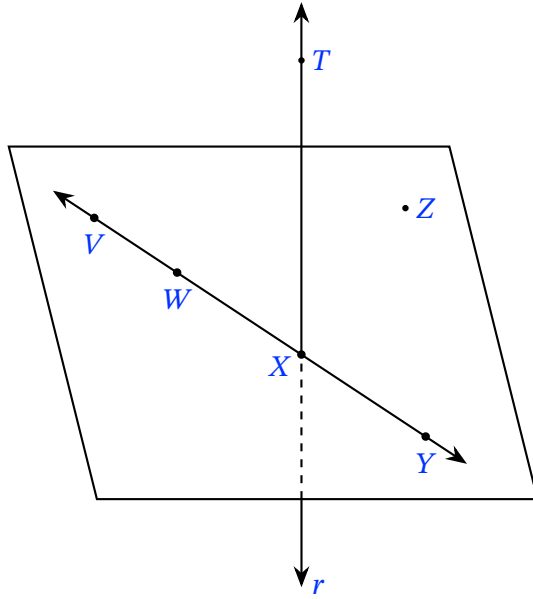
- A \overleftrightarrow{VW}
- B \overleftrightarrow{WY}
- C \overleftrightarrow{TX}
- D \overleftrightarrow{YZ}
- E \overleftrightarrow{WX}

Q21: Which of the following is a line containing the point X ?



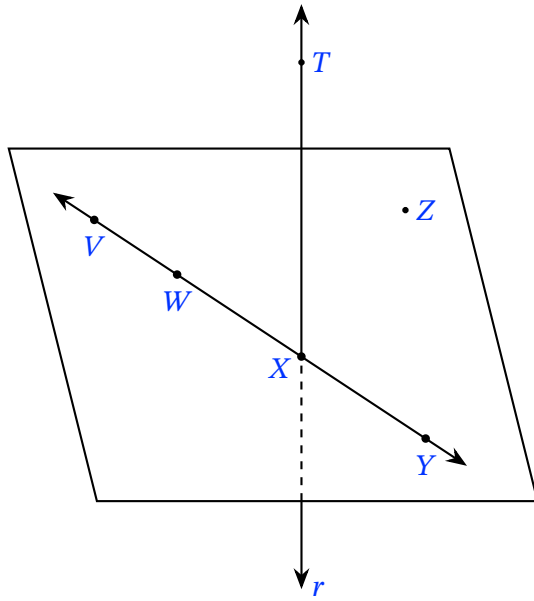
- A \overleftrightarrow{TW}
- B \overleftrightarrow{YZ}
- C \overleftrightarrow{WZ}
- D \overleftrightarrow{TY}
- E \overleftrightarrow{XW}

Q22: Which of the following is a line containing the point W ?



- A \overleftrightarrow{VY}
- B \overleftrightarrow{VZ}
- C \overleftrightarrow{TW}
- D \overleftrightarrow{YZ}
- E \overleftrightarrow{TY}

Q23: Which of the following lines contains the point V ?



- A \overleftrightarrow{XW}
- B \overleftrightarrow{XZ}
- C \overleftrightarrow{TY}
- D \overleftrightarrow{YZ}
- E \overleftrightarrow{TW}