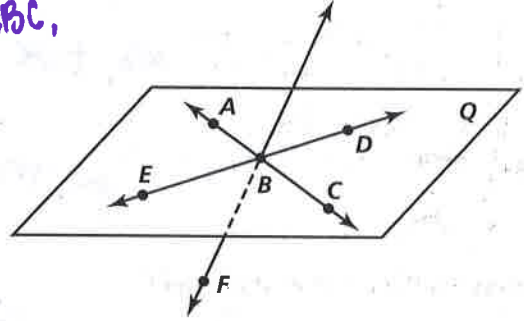


Practice 1-3

Points, Lines, and Planes

Refer to the diagram at the right for Exercises 1–15.

1. Name \overleftrightarrow{AB} in another way. $\overleftrightarrow{BA}, \overleftrightarrow{AC}$
2. Give two other names for plane Q . plane ABE , plane EBC .
3. Why is EBD not an acceptable name for plane Q ? they are all collinear



Are the following sets of points collinear?

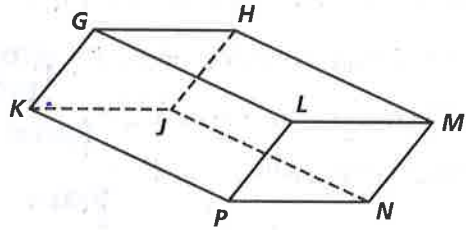
4. \overleftrightarrow{AB} and C yes
5. B and F yes
6. \overleftrightarrow{EB} and A no
7. F and plane Q no

Are the following sets of points coplanar?

8. $E, B,$ and F no
9. \overleftrightarrow{DB} and \overleftrightarrow{FC} no
10. \overleftrightarrow{AC} and \overleftrightarrow{ED} yes
11. \overleftrightarrow{AE} and \overleftrightarrow{DC} yes
12. $F, A, B,$ and C no
13. $F, A, B,$ and D no
14. plane Q and \overleftrightarrow{EC} yes
15. \overleftrightarrow{FB} and \overleftrightarrow{BD} no

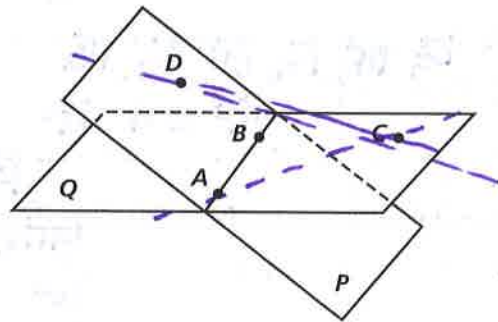
Find the intersection of the following lines and planes in the figure at the right.

16. \overleftrightarrow{GK} and \overleftrightarrow{LG} $\cdot G$
17. planes GLM and LPN \overleftrightarrow{LM}
18. planes $GHPN$ and KJP \overleftrightarrow{PN}
19. planes HJN and GKL none
20. \overleftrightarrow{KP} and plane KJN \overleftrightarrow{KP}
21. \overleftrightarrow{KM} and plane GHL none



Refer to the diagram at the right.

22. Name plane P in another way. plane ABD
23. Name plane Q in another way. plane ABC
24. What is the intersection of planes P and Q ? \overleftrightarrow{AB}
25. Are A and C collinear? yes
26. Are $D, A, B,$ and C coplanar? no
27. Are D and C collinear? yes
28. What is the intersection of \overleftrightarrow{AB} and \overleftrightarrow{DC} ? not labeled
29. Are planes P and Q coplanar? no
30. Are \overleftrightarrow{AB} and plane Q coplanar? yes
31. Are B and C collinear? yes



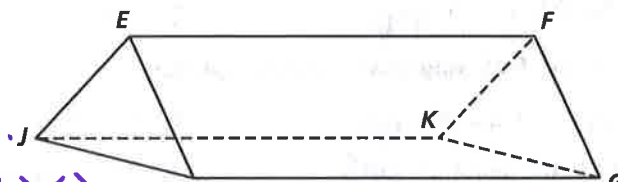
Practice 1-4

Segments, Rays, Parallel Lines, and Planes

Write true or false.

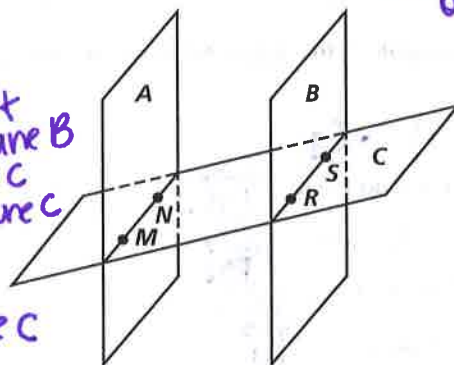
- \overleftrightarrow{XY} is the same as \overleftrightarrow{YX} . *true*
- If \overrightarrow{AB} and \overrightarrow{AC} are opposite rays, then they are collinear. *yes, true*
- If the union of two rays is a line, then the rays are opposite rays. *yes, true*
- \overleftrightarrow{XY} is the same as \overleftrightarrow{YX} . *false*
- If two rays have the same endpoint, then they form a line. *no, false*
- If \overrightarrow{PQ} and \overrightarrow{PR} are the same rays, then Q and R are the same point. *false*

Refer to the diagram at the right.



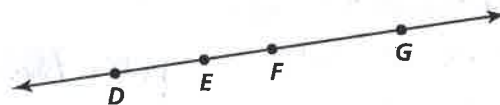
- Name all segments parallel to \overline{EF} . *$\overline{JK}, \overline{HG}$*
 - Name all segments parallel to \overline{FG} . *$\overline{EH}, \overline{JH}$*
 - Name three pairs of skew lines. *① $\overleftrightarrow{JH}, \overleftrightarrow{EF}$, ② $\overleftrightarrow{JK}, \overleftrightarrow{FG}$, ③ $\overleftrightarrow{JE}, \overleftrightarrow{KG}$ ← just examples could have others*
- not parallel, don't intersect*

Refer to the diagram at the right.



- Which pair(s) of planes is (are) parallel? *plane A + plane B*
- Which pair(s) of planes intersect? *plane A + plane C, plane B + plane C*
- Which planes intersect in \overleftrightarrow{MN} ? *plane A and plane C*
- Which planes intersect in \overleftrightarrow{RS} ? *plane B + plane C*

Refer to the diagram at the right.



- Name \overrightarrow{EF} in another way. *\overrightarrow{EG}*
- How many different segments can be named? *6*
 $\overline{DE}, \overline{DF}, \overline{DG}, \overline{EF}, \overline{EG}, \overline{FG}$
- Name a pair of opposite rays with E as an endpoint. *\overrightarrow{EF} and \overrightarrow{ED}*
- Name in two different ways the ray opposite \overrightarrow{FG} . *\overrightarrow{FE} or \overrightarrow{FD}*
- Name \overrightarrow{GE} in two other ways. *\overrightarrow{GF} or \overrightarrow{GD}*
- Are \overline{EG} and \overline{GE} the same segment? *yes*

Draw each of the following.

- parallel planes $S, T,$ and U
[Hand-drawn diagram showing three parallel horizontal planes labeled S, T, and U.]
- planes R and W intersecting in \overleftrightarrow{PQ}
[Hand-drawn diagram showing two intersecting planes labeled R and W, with their intersection line labeled PQ.]