

Geometry, Ch 1-1 Exercises, pg 5, #1-12, 14-15, 17-22, 25-32, 39a+b

1. Write in words what each symbol means.

- a. Q point Q
- b. \overline{MN} segment MN
- c. \vec{ST} ray ST ; not ray TS
- d. \overleftrightarrow{FG} line FG

2. Compare colinear and coplaner points.

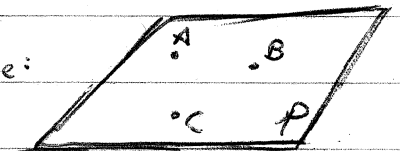
Are colinear points coplaner?

Are coplaner points colinear?

Colinear points lie in the same line. Since a line lies in a plane, colinear points must also be coplaner.

Coplaner points do not have to be colinear.

Counter-example:



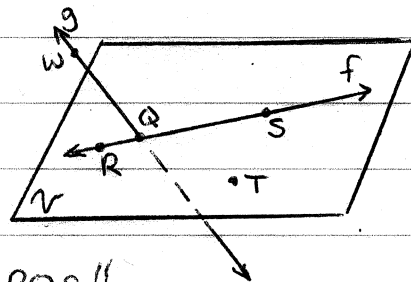
Use the diagram for #3-7

3. Give 2 other names for \overleftrightarrow{WQ}

\overleftrightarrow{QW} or line g

4. Give another name for plane V .

Sample: plane RQT . Not plane RQS !!



5. Name 3 colinear points; then name a 4th point not colinear with them.

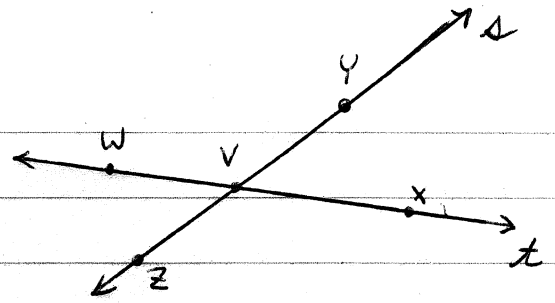
points R, Q, S are colinear; either W or T are not colinear with them

6. Name a point not coplaner with $R, S,$ and T . point W

7. Is point W coplaner with points Q and R ? Explain. Yes.

Any 3 non-colinear points define a plane. In this case, it's not the plane drawn.

Use the diagram for #8-12



8. What is another name for \overleftrightarrow{ZY} ?

\overleftrightarrow{YZ} ; not line d

9. Name all rays with endpoint V .

\vec{VW} , \vec{VY} , \vec{VZ} , \vec{VX}

10. Name two pairs of opposite rays

(1) \vec{VW} and \vec{VX} (2) \vec{VY} and \vec{VZ}

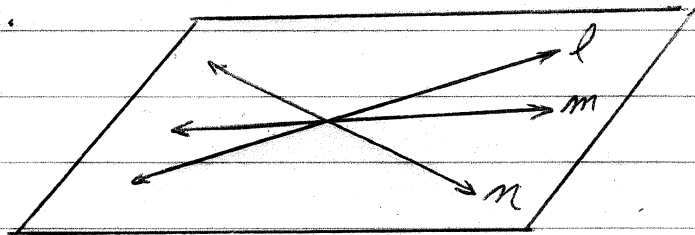
11. Give another name for \vec{WV} .

\vec{WX}

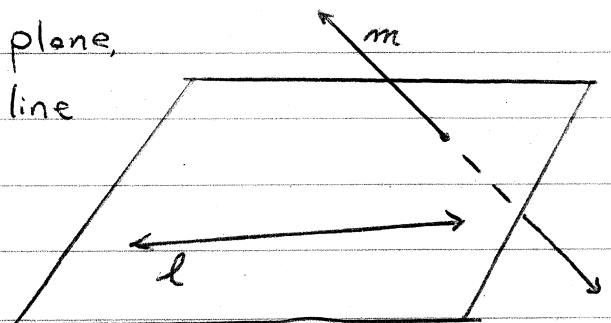
12. Describe the error: \vec{VW} and \vec{VZ} are opposite rays because they have the same endpoint.

Opposite Rays must have a common endpoint, with the endpoint V between points W and Z .

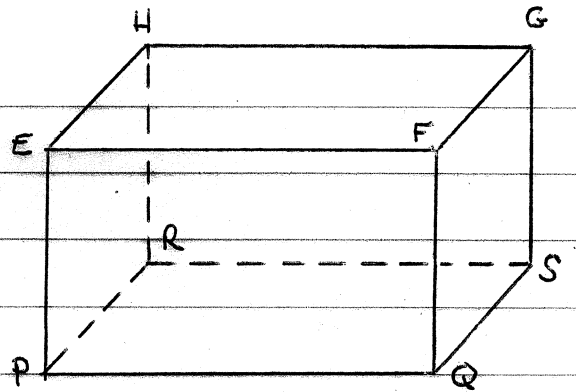
14. Sketch three lines in a plane that intersect at a single point.



15. Sketch one line that lies in a plane, and one line that does not lie in the plane.



Use the diagram for #17-22



17. Name intersection of \overleftrightarrow{PR} and \overleftrightarrow{HR} .

point R

18. Name the intersection of plane EFG and plane FGS.

\overleftrightarrow{FG}

19. Name the intersection of plane PQS and plane HGS. \overleftrightarrow{RS}

20. Are points P, Q, F colinear? No Are they coplanar? Yes

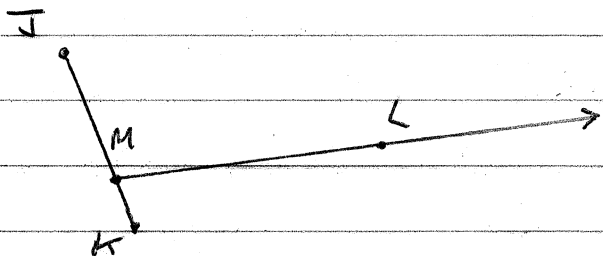
21. Are points P and G colinear? Yes Are they coplanar? Yes

22. Name 3 planes that intersect at point E.

[Many correct answers] One sample: plane EHG, plane EFQ, and plane EHS

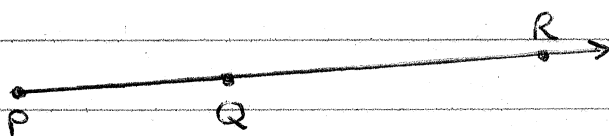
25. Sketch: Three noncolinear points J, K, and L.

Sketch \overline{JK} and add a point M on \overline{JK} . Then sketch \overrightarrow{ML} .



26. Sketch: Draw two points P and Q. Then sketch \overrightarrow{PQ} .

Add a point R on the ray so Q is between P and R.



Algebra: Given the equation of a line, and a point, use substitution to determine whether the point is on the line.

$$27. \quad y = x - 4; \quad A(5, 1) \quad \begin{array}{l} ? \\ (1) = (5) - 4 \\ 1 = 1 \quad \underline{\underline{\text{Yes}}} \end{array}$$

$$28. \quad y = x + 1; \quad A(1, 0) \quad \begin{array}{l} ? \\ (0) = (1) + 1 \\ 0 = 2 \quad \underline{\underline{\text{No}}} \end{array}$$

$$29. \quad y = 3x + 4; \quad A(7, 1) \quad \begin{array}{l} ? \\ (1) = 3(7) + 4 \\ (1) = 21 + 4 \\ 1 = 25 \quad \underline{\underline{\text{No}}} \end{array}$$

$$30. \quad y = 4x + 2; \quad A(1, 6) \quad \begin{array}{l} ? \\ (6) = 4(1) + 2 \\ 6 = 6 \quad \underline{\underline{\text{Yes}}} \end{array}$$

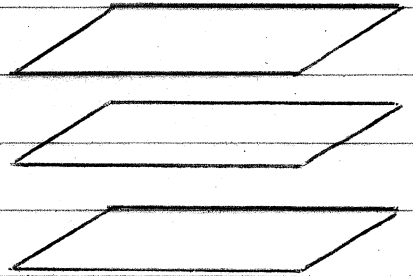
$$31. \quad y = 3x - 2; \quad A(-1, -5) \quad \begin{array}{l} ? \\ (-5) = 3(-1) - 2 \\ -5 = -3 - 2 \\ -5 = -5 \quad \underline{\underline{\text{Yes}}} \end{array}$$

$$32. \quad y = -2x + 8; \quad A(-4, 0) \quad \begin{array}{l} ? \\ (0) = -2(-4) + 8 \\ 0 = 8 + 8 \\ 0 = 16 \quad \underline{\underline{\text{No}}} \end{array}$$

39. Tell whether each of the following situations involving 3 planes is possible. If possible, then make a sketch.

a. None of the planes intersect.

[All planes parallel]



b. Planes intersect in one line.

