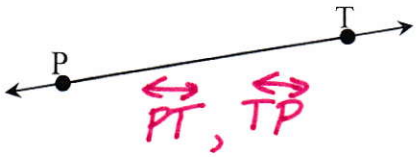
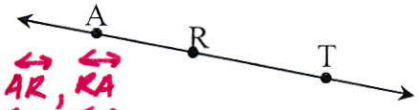
Name_____ Date_____

1.1 – Points, Lines, and Planes

Name each line two different ways.

1. 

$\overleftrightarrow{PT}$, $\overleftrightarrow{TP}$

2. 

$\overleftrightarrow{AR}$, $\overleftrightarrow{RA}$
$\overleftrightarrow{RT}$, $\overleftrightarrow{TR}$
$\overleftrightarrow{AT}$, $\overleftrightarrow{TA}$ ...

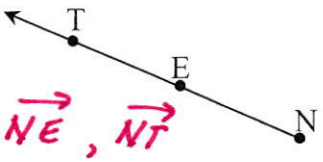
Name each line segment or ray two different ways.

3. 

$\overline{HV}$, $\overline{VH}$

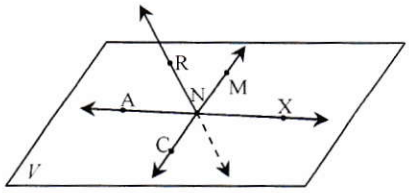
4. 

$\overrightarrow{AX}$, $\overrightarrow{AE}$

5. 

$\overrightarrow{NE}$, $\overrightarrow{NT}$

Use the figure below for Exercises 6–13. Note that $\overleftrightarrow{RN}$ pierces the plane at N. It is not coplanar with V.



6. Name two segments shown in the figure.

$\overline{AN}$, $\overline{NX}$, etc.

7. What is the intersection of $\overleftrightarrow{CM}$ and $\overleftrightarrow{RN}$

Point N

8. Name three collinear points.

Points A, N, and X
(Various answers)

9. What are two other ways to name plane V?

Plane ANC, Plane CNX
(Just as long as you use 3 pts on plane)

10. Are points R, N, M, and X coplanar?

No

11. Name two rays shown in the figure.

$\overrightarrow{NA}$, $\overrightarrow{NM}$, etc.

12. Name the pair of opposite rays with endpoint N.

$\overrightarrow{NA}$, $\overrightarrow{NX}$, etc.

13. How many lines are shown in the drawing?

3

For Exercises 14–19, determine whether each statement is *always (A), sometimes(S),* or *never (N)* true.

14. $\overrightarrow{GH}$ and $\overrightarrow{HG}$ are the same ray. N

15. $\overrightarrow{JI}$ and $\overrightarrow{JL}$ are opposite rays. S

16. A plane contains only three points. N

17. Three noncollinear points are contained in only one plane. A

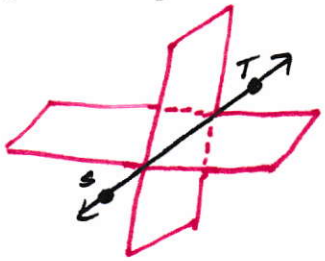
18. If $\overleftrightarrow{EG}$ lies in plane X, point G lies in plane X. A

19. If three points are coplanar, they are collinear. S

20. Reasoning: Is it possible for one ray to be shorter in length than another? Explain.

No. All rays have the same length since they all go on forever in one direction.

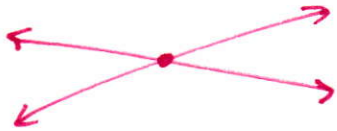
21. Open-Ended: Draw a figure of two planes that intersect in $\overleftrightarrow{ST}$.



22. Draw a figure to fit each description

a. Through any two points there is exactly one line.

b. Two distinct lines can intersect in only one point.



23. Reasoning: Point F lies on $\overleftrightarrow{EG}$ and point M lies on $\overleftrightarrow{EN}$. If F, E, and M are collinear, what must be true of these rays?

They lie on the same line.
They are opposite rays

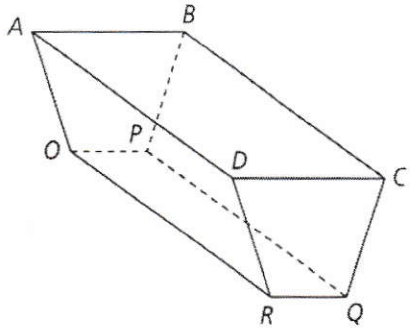
Use the figure for Exercises 24–28. Name the intersection of each pair of planes or lines.

24. planes ABP and BCD

$\overleftrightarrow{AB}$

27. planes BCD and BCQ

$\overleftrightarrow{BC}$



25. $\overleftrightarrow{RQ}$ and $\overleftrightarrow{RO}$

Point R

28. $\overleftrightarrow{OP}$ and $\overleftrightarrow{QP}$

Point P

26. planes ADR and DCQ

$\overleftrightarrow{DR}$