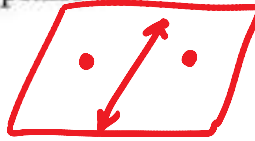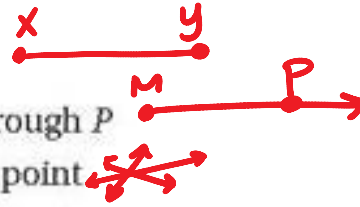## 1-1 Understanding Points, Lines, and Planes

Draw and label each of the following.

1. a segment with endpoints X and Y
2. a ray with endpoint M that passes through P
3. three coplanar lines intersecting at a point.
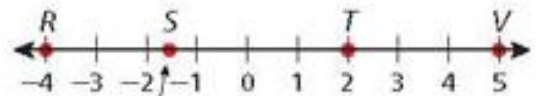4. two points and a line that lie in a plane

Use the figure to name each of the following.

5. three coplanar points W, V, Y
6. two lines $\overleftrightarrow{XZ}$ and $\overrightarrow{WY}$
7. a plane containing T, V, and X plane TVW
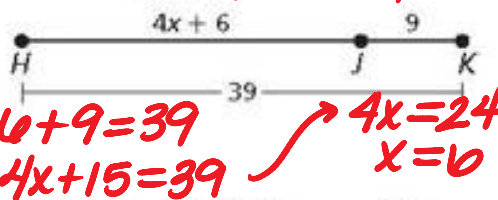8. a line containing V and Z $\overleftrightarrow{XZ}$ or plane ℓ
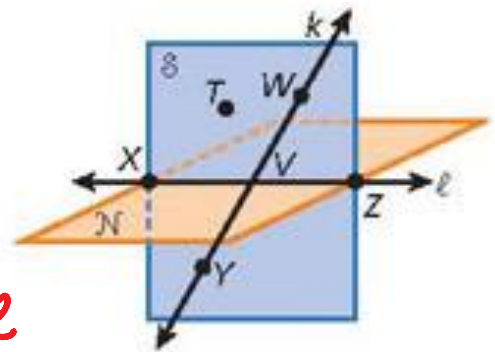
1-2 Measuring and Constructing Segments

Find the length of each segment.

9. $\overline{SV}$ $|5 - ^-1.5| = 6.5$
10. $\overline{TR}$ $|2 - ^-4| = 6$
11. $\overline{ST}$ $|2 - ^-1.5| = 3.5$

12. The diagram represents a straight highway with three towns, Henri, Joaquin, and Kenard. Find the distance from Henri H to Joaquin J.
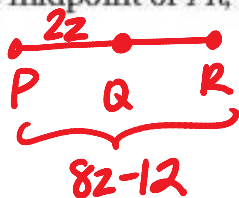
$4x + 6 + 9 = 39$
$4x + 15 = 39$
$4x = 24$
$x = 6$

$\overline{HJ} = 4(6) + 6$
$= 24 + 6$
$= 30$

13. ~~Sketch, draw,~~ **SKIP** and construct a segment congruent to $\overline{CD}$.

14. Q is the midpoint of $\overline{PR}$, $PQ = 2z$, and $PR = 8z - 12$. Find z, PQ, and PR.

$2z + 2z = 8z - 12$
$4z = 8z - 12$
$12 = 4z$
$3 = z$

$\overline{PQ} = 2(3) = 6$
$\overline{PR} = 8(3) - 12 = 12$

1-3 Measuring and Constructing Angles
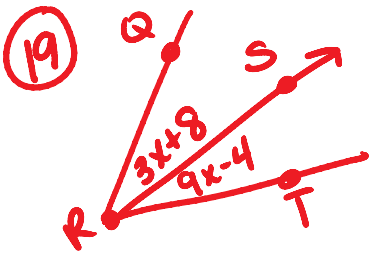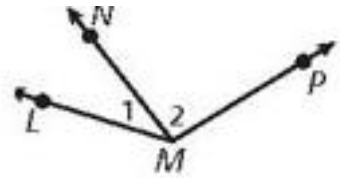
15. Name all the angles in the diagram.

∠LMN, ∠NML, ∠1, ∠NMP, ∠PMN, ∠2, ∠M

Classify each angle by its measure.

16. $m\angle PVQ = 21°$ *angle*   **17.** $m\angle RVT = 96°$ *obtuse*   **18.** $m\angle PVS = 143°$ *obtuse*

19. $\overrightarrow{RS}$ bisects $\angle QRT$, $m\angle QRS = (3x + 8)°$, and $m\angle SRT = (9x - 4)°$. Find $m\angle SRT$.

20. Use a protractor and straightedge to draw a 130° angle. Then bisect the angle.

(19)

$3x + 8 = 9x - 4$
$12 = 6x$
$2 = x$

$m\angle SRT = 9(2) - 4$
$= 18 - 4$
$= 14°$

1-4 Pairs of Angles

Tell whether the angles are only adjacent, adjacent and form a linear pair, or not adjacent.

21. ∠1 and ∠2 **LP**   **22.** ∠4 and ∠5 **adj**   **23.** ∠3 and ∠4 **none**

If $m\angle T = (5x - 10)°$, find the measure of each of the following.

24. supplement of ∠T $180 - (5x - 10)$
$180 - 5x + 10$
$190 - 5x$

25. complement of ∠T $90 - (5x - 10)$
$90 - 5x + 10$
$100 - 5x$