

Unit 1 Review Guide - Segment Relationships

Name: Key

Goal 1: I can name lines, rays, segments, and planes.

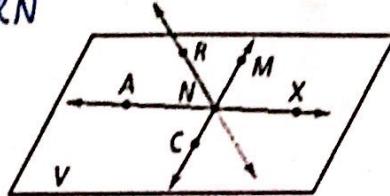
M.A. = Multiple Answers

Use the figure below for Exercises 1-8. Note that \overleftrightarrow{RN} pierces the plane at N . It is not coplanar with V .

MA 1a. Name two segments shown in the figure. \overline{MC} , \overline{AN} , \overline{RN}

1b. What is the intersection of \overleftrightarrow{AM} and \overleftrightarrow{RN} ? N

1c. Name three collinear points. A, N, X or M, N, C



MA 1d. What are two other ways to name plane V ? Plane ANC , Plane MXC

1e. Are points $R, N, M,$ and X coplanar? **NO**

MA 1f. Name two rays shown in the figure. \overrightarrow{NR} , \overrightarrow{NA} , \overrightarrow{NC}

1g. Name the pair of opposite rays with endpoint N .

$\overrightarrow{NX} \text{ ; } \overrightarrow{NA}$ OR $\overrightarrow{NM} \text{ ; } \overrightarrow{NC}$

Use the figure at the right for Exercises h-l.

Name the intersection of each pair of planes or lines.

1h. planes ABP and BCD

\overleftrightarrow{AB}

1i. \overleftrightarrow{RQ} and \overleftrightarrow{RO}

R

1j. planes ADR and DCQ

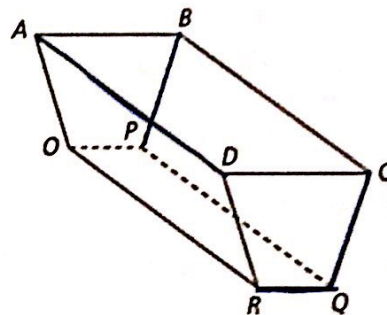
\overleftrightarrow{DR}

1k. planes BCD and BCQ

\overleftrightarrow{BC}

1l. \overleftrightarrow{OP} and \overleftrightarrow{QP}

P



Name two planes that intersect in the given line using the figure at the right.

1m. \overleftrightarrow{RO}

Plane ADR
Plane PQR

1n. \overleftrightarrow{CO}

Plane CDR
Plane BCQ

1o. \overleftrightarrow{DA}

Plane ABC
Plane ADR

1p. \overleftrightarrow{BP}

Plane ABP
Plane CBP

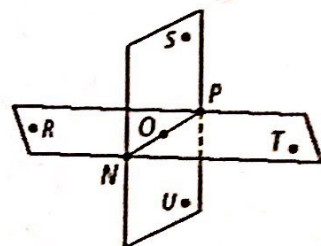
Postulate 1-4 states that any three noncollinear points lie in one plane. Find the plane that contains the first three points listed. Then determine whether the fourth point is in that plane. Write *coplanar* or *noncoplanar* to describe the points.

1q. P, T, R, N coplanar

1r. P, O, S, N coplanar

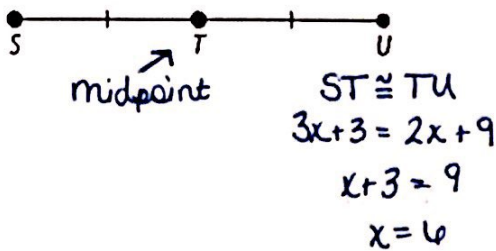
1s. T, R, N, U noncoplanar

1t. P, O, R, S noncoplanar



Goal 2: I can define, recognize, and solve problems related to midpoint, segment addition, and perpendicular bisectors.

2a. Given: $ST = 3x + 3$ and $TU = 2x + 9$.



a. What is the value of ST ? $ST = 3(6) + 3$

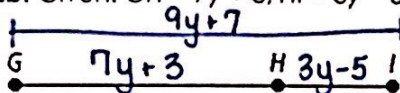
$ST = 21$

b. What is the value of TU ?

$TU = 2(6) + 9$

$TU = 21$

2b. Given: $GH = 7y + 3$, $HI = 3y - 5$, and $GI = 9y + 7$.



$7y + 3 + 3y - 5 = 9y + 7$
 $10y - 2 = 9y + 7$
 $10y = 9y + 9$
 $y = 9$

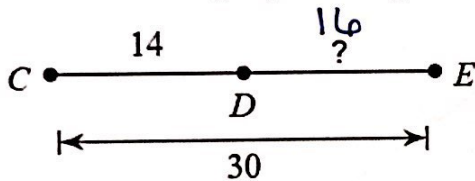
a. What is the value of y ?

$y = 9$

b. Find GH , HI , and GI .

$GH = 7y + 3$	$HI = 3y - 5$	$GI = 9y + 7$
$GH = 7(9) + 3$	$HI = 3(9) - 5$	$GI = 9(9) + 7$
$GH = 66$	$HI = 22$	$GI = 88$

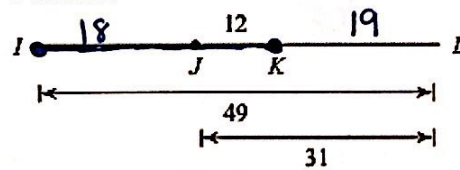
2c. Find the missing segment lengths:



$30 - 14 = 16$

$DE = 16$

Find IK



$31 - 12 = 19$

$49 - 12 - 19 = 18$

$IK = 30$

Goal 3: I can solve problems using distance and midpoint relationships and formulas.

Find: (a) the distance between the points to the nearest tenth.

(b) the coordinates of the midpoint of the segments with the given endpoints.

3a. $A(2, -1)$, $B(-4, 7)$

3b. $R(-5, 2)$, $S(2, 4)$

$d = \sqrt{(-4-2)^2 + (7-(-1))^2}$ $x = \frac{2+(-4)}{2}$ $y = \frac{-1+7}{2}$

$d = \sqrt{(-6)^2 + (8)^2}$

$d = \sqrt{36+64}$

$d = \sqrt{100}$

$d = 10$

$x = \frac{-2}{2}$ $y = \frac{6}{2}$

$x = -1$ $y = 3$

$m(-1, 3)$

$d = \sqrt{(2-(-5))^2 + (4-2)^2}$

$d = \sqrt{(7)^2 + (2)^2}$

$d = \sqrt{49+4}$

$d = \sqrt{53}$

$d = 7.3$

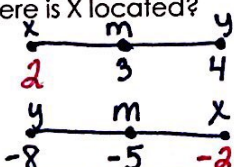
$x = \frac{-5+2}{2}$ $y = \frac{2+4}{2}$

$x = \frac{-3}{2}$ $y = \frac{6}{2}$

$x = -1.5$ $y = 3$

$m(-1.5, 3)$

3c. Segment YX is drawn on a coordinate plane. If Y is plotted at $(4, -8)$ and the midpoint is located at $M(3, -5)$, where is X located?



$2 \cdot 3 = \frac{x_1 + 4}{2}$ $2 \cdot (-5) = \frac{y_1 + (-8)}{2}$

$6 = x_1 + 4$

$2 = x_1$

$-10 = y_1 - 8$

$-2 = y_1$

$X(2, -2)$