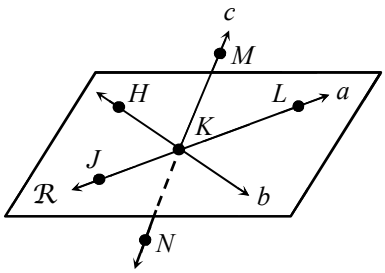
# Unit 1 Test Study Guide
## (Geometry Basics)

**Name:** _____

**Date:** _____ **Per:** _____

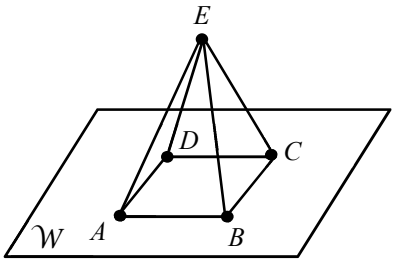
**Topic 1:** Points, Lines & Planes

**Use the diagram to the right to answer questions 1-4.**




1. Name two points collinear to point $K$. _____
2. Give another name for line $b$. _____
3. Name the intersection of line $c$ and plane $R$. _____
4. Name a point non-coplanar to plane $R$. _____

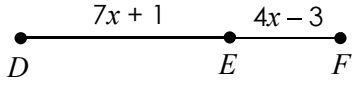
**Use the diagram to the right to answer questions 5-8.**



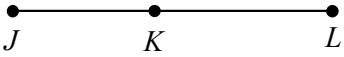

5. How many planes are shown in the figure? _____
6. Give another name for plane $W$. _____
7. Name the intersection of plane $ADE$ and plane $W$._____
8. Name a point non-collinear to points $A$ and $B$. _____

**Topic 2:** Segment Addition Postulate

**9.** If $DF = 42$, find $DE$.

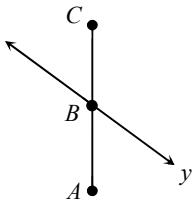



**10.** In the diagram below, if $JL = 10x - 2$, $JK = 5x - 8$, and $KL = 7x - 12$, find $KL$.

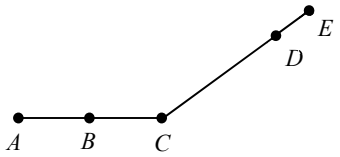



**11.** If $S$ is the midpoint of $\overline{RT}$, $RS = 5x + 17$, and $ST = 8x - 31$, find $RS$.

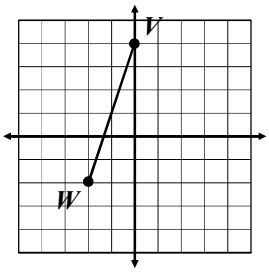
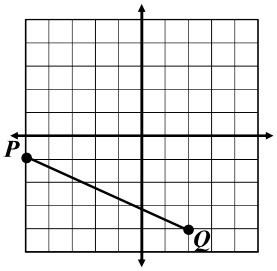
**12.** If line $y$ bisects $\overline{AC}$, $AB = 4 - 5x$, and $BC = 2x + 25$, find $AC$.



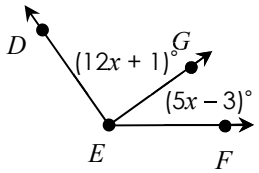
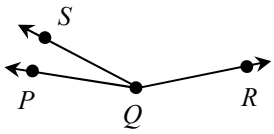

**13.** If $B$ is the midpoint of $\overline{AC}$, $AC = CD$, $AB = 3x + 4$, $AC = 11x - 17$, and $CE = 49$, find $DE$.



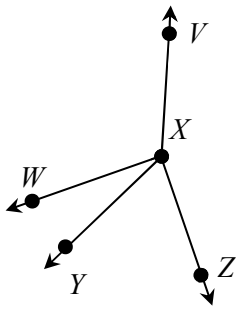
**Topic 3:** Distance & Midpoint Formula

| **DISTANCE FORMULA:** | **MIDPOINT FORMULA:** |
|---|---|
| **14.** Find $ST$ if $S(-3, 10)$ and $T(-2, 3)$. | **15.** Find $BC$ if $B(8, -7)$ and $C(-4, -2)$. |
| **16.** Given the graph below, find $WV$.<br>  | **17.** Given the graph below, find $PQ$.<br>  |
| **18.** Find the coordinates of the midpoint of $\overline{HK}$ if $H(-1, 2)$ and $K(-7, -4)$. | **19.** Find the coordinates of $Z$ if $Y$ is the midpoint of $\overline{XZ}$, $X(-10, 9)$, and $Y(-4, 8)$. |

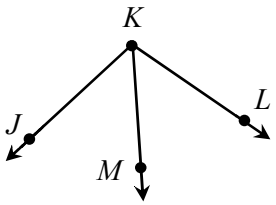
**Topic 4:** Angle Measures

| | |
|---|---|
| **20.** If $m\angle DEF = 117°$, find the value of $x$.<br>  | **21.** If $m\angle PQS = 16°$, $m\angle SQR = (9x + 17)°$, and $m\angle PQR = (12x - 6)°$, find $m\angle PQR$.<br>  |

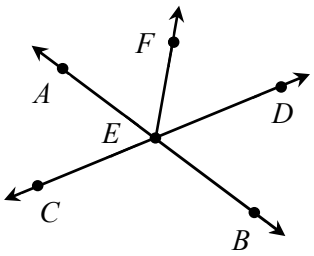
**22.** In the diagram below, $\angle WXZ$ is a right angle. If $m\angle WXV$ is eleven more than three times $m\angle WXY$ and $m\angle YXV = 139°$, find $m\angle YXZ$.




**23.** If $\overrightarrow{KM}$ bisects $\angle JKL$, $m\angle JKL = 92°$, and $m\angle MKL = (5x + 1)°$, find the value of $x$.

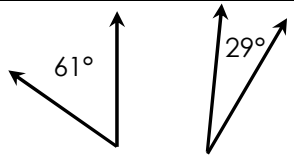



**24.** If $\overrightarrow{EF}$ bisects $\angle AED$, $m\angle AEF = (4x + 3)°$, and $m\angle FED = (7x - 33)°$, find $m\angle CEB$.

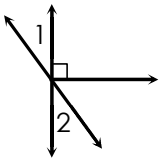



**Use the diagrams below to answer 25-29.**

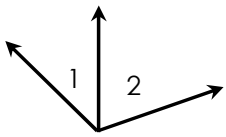
**A.**



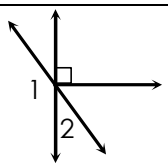

**B.**




**C.**

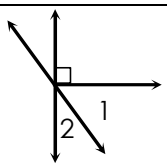



**D.**




**E.**


**F.**




**25.** Which diagram(s) show adjacent angles? _____

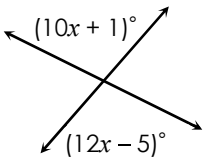
**26.** Which diagram(s) show vertical angles? _____

**27.** Which diagram(s) show complementary angles? _____

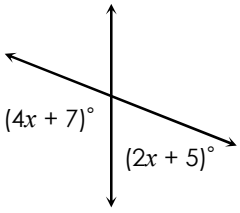
**28.** Which diagram(s) show supplementary angles? _____

**29.** Which diagram(s) show a linear pair? _____

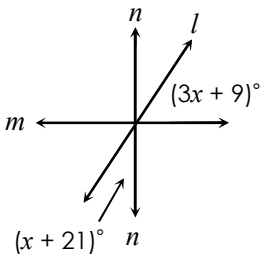
**30.** Solve for $x$.




**31.** Solve for $x$.



**32.** If $m \perp n$, solve for $x$.



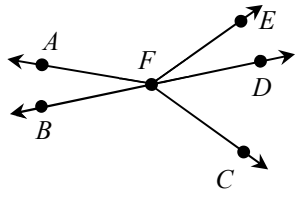

**33.** $\angle 1$ and $\angle 2$ form a linear pair. If $m\angle 1 = (18x - 1)^\circ$ and $m\angle 2 = (23x + 17)^\circ$, find $m\angle 2$.

**34.** $\angle G$ and $\angle H$ are complementary angles. If $m\angle G = (6x - 15)^\circ$ and $m\angle H = (3x + 6)^\circ$, find $m\angle H$.

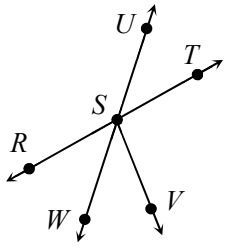
**35.** $\angle 1$ and $\angle 2$ are vertical angles. If $m\angle 1 = (5x + 12)^\circ$ and $m\angle 2 = (6x - 11)^\circ$, find $m\angle 1$.

**36.** The measure of $\angle P$ is five less than four times the measure of $\angle Q$. If $\angle P$ and $\angle Q$ are supplementary angles, find $m\angle P$.

**37.** In the diagram below, $\angle AFB \cong \angle EFD$. If $m\angle EFD = (5x + 6)^\circ$, $m\angle DFC = (19x - 15)^\circ$, and $m\angle EFC = (17x + 19)^\circ$, find $m\angle AFE$.




**38.** If $\overrightarrow{SV} \perp \overleftrightarrow{RT}$, $m\angle RSU = (17x - 3)^\circ$, and $m\angle UST = (6x - 1)^\circ$, find each missing measure.




$x =$ _____

$m\angle RSU =$ _____

$m\angle UST =$ _____

$m\angle WSV =$ _____

$m\angle VSU =$ _____