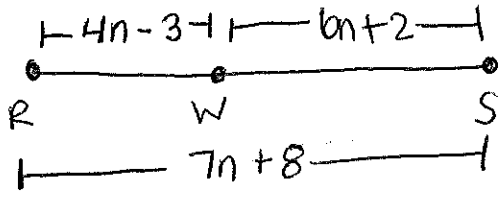
Geometry Name: _____

Unit 1 Review Date: _____ Period: _____

1. W, R, and S are collinear, and W is between R and S. RS = 7n + 8, RW = 4n - 3, and WS = 6n + 2, find the value of n and WS.



$4n-3+6n+2=7n+8$

$10n-1=7n+8$

$-7n \quad -7n$

$3n-1=8$

$+1 \quad +1$

$\frac{3n}{3}=\frac{9}{3}$

$n=3$

$WS=20$

$WS=6(3)+2=18+2$

2. In the following figure, $\overline{AC}$ and $\overline{BD}$ bisect each other at E. Given that AC = x + 3 and EC = 3x - 1, find EA.

$3x-1+3x-1=x+3$

$6x-2=x+3$

$5x-2=3$

$5x=5$

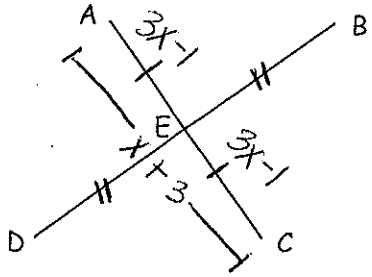
$x=1$

$EA=3(1)-1$

$=3-1$

$=2$

$EA=2$



3. If $m\angle ABC = 3x + 4$, $m\angle ABD = 2x$, and $m\angle DBC = 3x - 16$, find x and $m\angle ABC$.

$2x+3x-16=3x+4$

$5x-16=3x$

$2x=16$

$x=8$

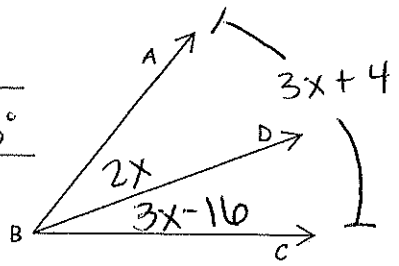
$m\angle ABC=3(8)+4$

$=24+4$

$=28$

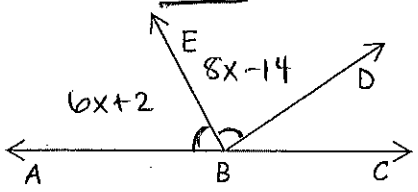
$x=8$

$m\angle ABC=28^\circ$



4.

a. $\overrightarrow{BE}$ bisects $\angle ABD$. If $m\angle ABE = 6x+2$ and $\angle DBE = 8x-14$, find $m\angle ABE$.



$6x+2=8x-14$

$2=2x-14$

$16=2x$

$8=x$

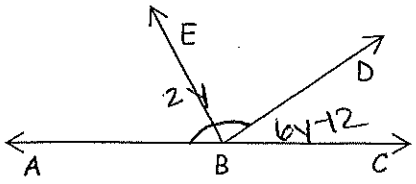
$m\angle ABE=6(8)+2$

$=48+2$

$=50^\circ$

$m\angle ABE=50^\circ$

b. $\overrightarrow{BE}$ bisects $\angle ABD$. Given that $m\angle ABD = 2y$ and $m\angle DBC = 6y-12$, find $m\angle DBC$.



$6y-12+2y=180$

$8y-12=180$

$8y=192$

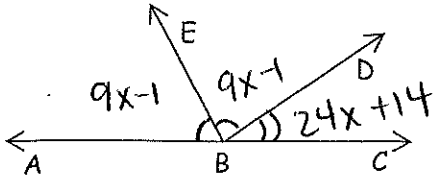
$y=24$

$m\angle DBC=6(24)-12$

$=132^\circ$

$m\angle DBC=132^\circ$

c. $\overrightarrow{BE}$ bisects $\angle ABD$. If $m\angle ABE = 9x-1$ and $m\angle DBC = 24x+14$, find $m\angle EBD$.



$9x-1+9x-1+24x+14=180$

$42x+12=180$

$42x=168$

$x=4$

$m\angle EBD=9x-1$

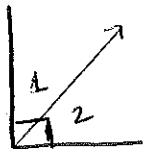
$=9(4)-1$

$=35^\circ$

$m\angle EBD=35^\circ$

adds up to 90°

12. $\angle 1$ is the complement of $\angle 2$. $m\angle 1 = 4x-3$ and $m\angle 2 = 15x-2$. Find $m\angle 2$.



$4x - 3 + 15x - 2 = 90$

$19x - 5 = 90$

$19x = 95$

$x = 5$

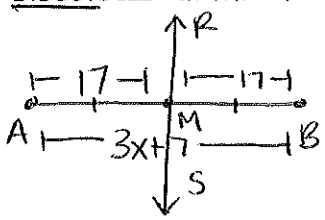
$m\angle 2 = 15(5) - 2$

$= 75 - 2$

$= 73°$

$m\angle 2 = 73°$

13. $\overline{RS}$ bisects $\overline{AB}$ at M. If AM = 17 and AB = 3x + 7, find x.



$17 + 17 = 3x + 7$

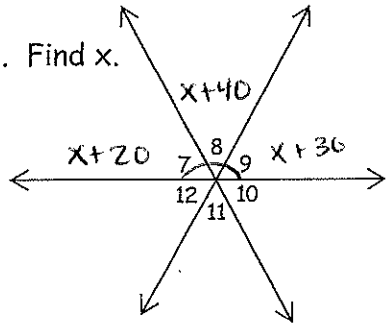
$37 = 3x + 7$

$\frac{30}{3} = \frac{3x}{3}$

$10 = x$

$x = 10$

14. In the picture to the right, $m\angle 7 = x+20$, $m\angle 8 = x+40$, *and* $m\angle 9 = x+30$. Find x.



$x + 20 + x + 40 + x + 30 = 180$

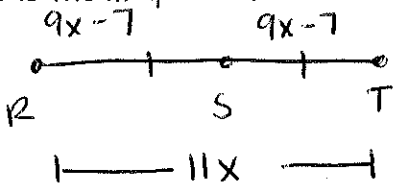
$3x + 90 = 180$

$3x = 90$

$x = 30$

$x = 30$

15. S is the midpoint of RT. RT = 11x and ST = 9x - 7. Find RT.



$9x - 7 + 9x - 7 = 11x$

$18x - 14 = 11x$

$7x = 14$

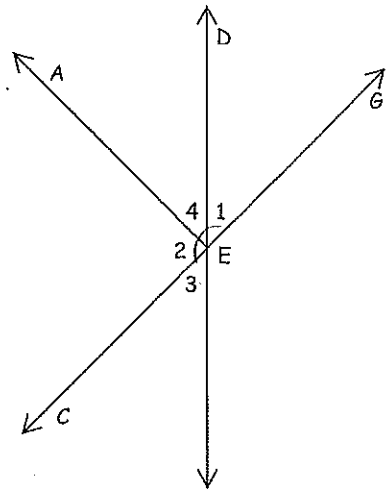
$x = 2$

$RT = 11(2)$

$= 22$

$RT = 22$

16. Refer to figure at the right to answer the following:



a. $m\angle 3 = 32$, find $m\angle CED$.

$180 - 32 = 148$

$m\angle CED = 148°$

b. If $m\angle 2 = 6x-20$, $m\angle 4 = 3x+18$, and $m\angle CED = 151$, find the value of x.

$6x - 20 + 3x + 18 = 151$

$9x - 2 = 151$

$9x = 153$

$x = 17$

$x = 17$

c. If $m\angle 1 = 49-2x$, $m\angle 4 = 4x+12$, and $m\angle 2 = 15x$, find $m\angle 4$.

$49 - 2x + 4x + 12 + 15x = 180$

$17x + 61 = 180$

$17x = 119$

$x = 7$

$m\angle 4 = 4(7) + 12$

$m\angle 4 = 40°$

Match the term on the left with the definition on the right.

L 17. Angle

E 18. Collinear

H 19. Ray

G 20. Segment

B 21. Vertical angles are _____

C 22. Point

A 23. Coplanar

J 24. Line

F 25. Plane

D 26. Undefined Terms

A. When two or more points lie on the same plane.

B. Congruent

C. Has location only; no length, width, or depth

D. Point, Line, and Plane

E. When two or more points lie on the same line.

F. A flat surface that extends in all directions.

G. A part of a line containing two endpoints, and all the points in between.

H. A one-directional line

I. Lines that form a 90° angle at their intersection.

J. Extends indefinitely in two directions; has no thickness or width.

K. The common endpoint of the two non-collinear rays that make up the sides of an angle.

L. A figure formed by two rays with a common endpoint