Geometry (H)
Section 1. – Homework

Name: _____KEY_____

In the diagram, $\overline{HL}$ and $\overline{KT}$ intersect at the midpoint of $\overline{HL}$. Classify each statement as true or false.

1. $\overline{LM} \cong \overline{MH}$ True

2. KM must equal MT   F

3. $\overline{MT}$ bisects $\overline{LH}$ T

4. $\overline{KT}$ is a bisector of $\overline{LH}$ T

✳ 5. $\overline{MT}$ and $\overline{TM}$ are opposite rays   F

6. $\overline{MT}$ and $\overline{MK}$ are opposite rays   T

line
7. $\overline{LH}$ is the same as $\overline{HL}$ F

8. $\overline{KT}$ is the same as $\overline{KM}$ T

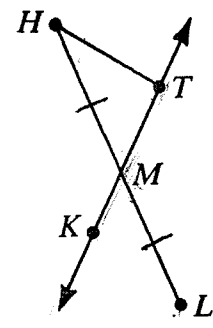9. $\overline{KT}$ is the same as $\overline{KM}$ T.

10. $\overline{KT}$ is the same as $\overline{KM}$ F.

11. HM + ML = HL   T

12. TM + MH = TH   F

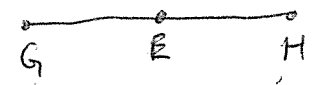13. T is between H and M.   F

14. M is between K and T.   T

15. Find the value of z. The find GE and EH and state whether E is the midpoint of $\overline{GH}$.

a. GE = z + 2, GH = 20, EH = 2z - 6

$z+2 = 2z-6$ GE = 10
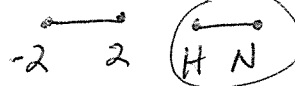$8 = z$ EH = 10
                                 $\overline{20}$ ✓

G —— E —— H

(yes, midpt)

b. GH = z + 6, EH = 2z – 4, GE = z

$z + 2z - 4 = z + 6$ GE = 5
$3z - 4 = z + 6$ EH = 6 } 5+6 = 11 ✓
$2z = 10$ GH = 11
$z = 5$ (NO, NOT midpt b/c 5 ≠ 6.

16. Name the graph of the equation or the inequality.

a. $-2 \le x \le 2$ -2   2   (H N)

b. $x \le 0$ GM

c. $|x| \le 4$ GT

d. $|x| \ge 0$ GZ

e. $|x| = 0$ pt M.

G   H   M   N   T   Y   Z
-4   -2   0   2   4   6   8
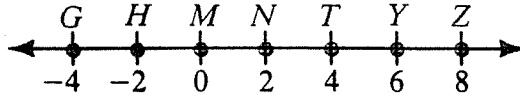
Let J be between H and K. Use the segment addition postulate to solve for w. Find the length of each segment.

H   J   K

17. HJ = 2w + 5

JK = 3w − 7 $2w + 5 + 3w - 7 = 18$

KH = 18 $5w - 2 = 18$

$5w = 20$

(W = 4)

(HJ = 13)
(JK = 5)

18. HJ = $\frac{1}{2}$ w + 2 $\frac{1}{2}w + 2 + 3w + \frac{3}{2} = 5w + 2$

JK = 3w + $\frac{3}{2}$ $3\frac{1}{2}w + 3\frac{1}{2} = 5w + 2$

KH = 5w + 2 $\frac{7}{2}w + \frac{7}{2} = \frac{10}{2}w + \frac{4}{2}$

$\frac{3}{2} = \frac{3}{2}w$

(1 = w)

(HJ = 2½
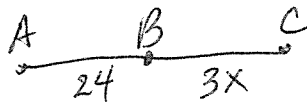JK = 4½
KH = 7)   checks ✓

If B is between A and C, find the value of x and the measure of $\overline{BC}$.

A   B   C
  24   3x

19. AB = 24
BC = 3x
AC = 7x − 4 $24 + 3x = 7x - 4$
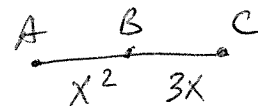
$28 = 4x$
(7 = x)

(BC = 21)

ck
AC = 45
$21 + 24 = 45$ ✓

A   B   C
  x²   3x

20. AB = x²
BC = 3x
AC = 10

$x^2 + 3x = 10$
$x^2 + 3x - 10 = 0$
$(x + 5)(x - 2) = 0$
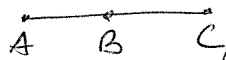x = −5   (x = 2)
OMIT   (BC = 6)

ck: AB = 4
AC = 10 ✓

21. Draw a figure that satisfies all of the following conditions.
- Points V,W,X,Y and Z are collinear
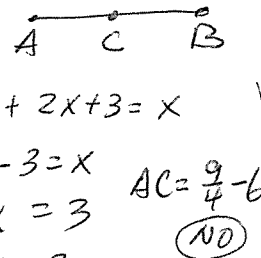- V is between Y and Z
- X is next to V
- WY = YZ

W ———— Y V X Z

W ———— Y X V Z

Answer

22. Points A, B and C are collinear. If AB = x, BC = 2x + 3, and AC = 3x -6, which point is between the other two points? Show all possible cases and explain your solution.

$X + 2X + 3 = 3X - 6$
$3X + 3 = 3X - 6$
$3 = -6$
(NO)

A — B — C

$3x - 6 + 2x + 3 = x$
$5x - 3 = x$
$4x = 3$
$x = \frac{3}{4}$
$AC = \frac{9}{4} - 6$
(NO)

A — C — B

respectively.

B (A) C

$X + 3x - 6 = 2x + 3$
$2x = 9$
$x = \frac{9}{2}$
$AB = 4\frac{1}{2}$
$AC = \frac{27}{2} - 6 = 7\frac{1}{2}$
$BC = 9 + 3 = 12$

23. Point B and C divide AD in the ratio of 8:5:3, AD = 48. Find the length of each segment and determine if B is the midpoint of $\overline{AD}$.

A 8X B 5x C 3x D

$8X + 5X + 3X = 48$
$16X = 48$
$X = 3$
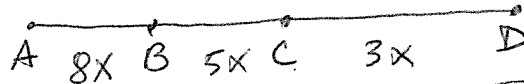
(AB = 24) (BC = 15) (CD = 9)

$24 \stackrel{?}{=} 15 + 9$
Yes, B midpt of $\overline{AD}$.

24. AB = 10. The coordinate of A is 3x − 6 and the coordinate of B is 5x + 2. Find all possible values of B.

3x-6 ———————— 5x+2
A   B

$|3x - 6 - (5x + 2)| = 10$
$|3x - 6 - 5x - 2| = 10$
$|-2x - 8| = 10$

$-2x - 8 = 10$
$-2x = 18$
$X = -9$
$A = -33$
(B = -43)
$|-33 - -43| \stackrel{?}{=} 10$

$-2x - 8 = -10$
$-2x = -2$
$X = 1$
$A = -3$
(B = 7)
$|-3 - 7| \stackrel{?}{=} 10$

thr packet — #23

A ——8x—— C ——5x—— B ——3x—— D

24   15   9
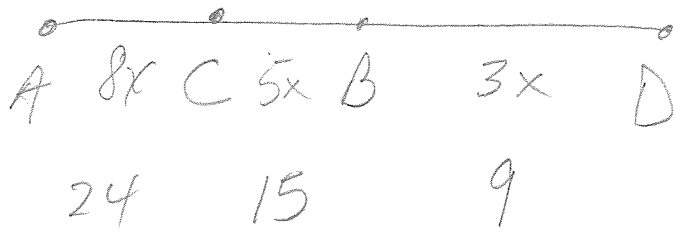
If B & C switches, doesn't work.
B is not midpt of $\overline{AD}$.