**Segment Relationships Review Notes**

ACC Geometry

**Warm Up:**

Segment Addition with Algebra: Find the variables and indicated lengths.

A. Geometry: Justification:

X = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_MN = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_NP = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_MP = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

B. Midpoints with Algebra: In each diagram, M is the midpoint of the segment. Find the indicated length.

 Geometry: Justification:

X = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_GM = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_MH = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_GH = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. B lies between A and C on AC. If $AC = 44in$, $AB=3x^{2}$, and $BC=2x^{2}-6x+45,$ Find the value of x and the lengths of each segment.

 Check Work:

Geometry: Justification:

X = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_AB = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_BC = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_AC = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. M is the midpoint of LN. If $LM=3x^{2}-7x$, and $MN=x^{2}-3,$ Find the value of x and the lengths of each segment.

 Check Work:

Geometry: Justification:

X = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_LM = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_MN = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_LN = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. N lies between A and K on AK. If $AN = t^{2}+2t$, $NK=t^{2}+9t-25$, and $AK=6t+38,$ Find the value of t and the lengths of each segment.

 Check Work:

Geometry: Justification:

t = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_AN = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_NK = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_AK = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. B is the midpoint of $\overbar{AC}$. If AB = 3x2 + 2x – 15, BC = x2 – 5x - 20, find the value of the variable and the lengths of each segment.

 Check Work:

Geometry: Justification:

x = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_AN = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_NK = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_AK = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. If QR = 2x2 – 9x – 12 and ST = -2x2 – 18x – 3, find all possible value(s) for x.



Geometry: ~~Justification:~~

 Check Work:

X = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. M is between L and N. If LM = x2 + 22x + 3, LN = 24, and MN = 2x2 + 28, find the value of x and the lengths of each segment.

 Check Work:

Geometry: Justification:

X = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_AB = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_BC = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_AC = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_