

SECTION 2.5 - GEOMETRY APPLICATIONS

Midpoint, Segment Addition and Angle Addition

GEOMETRY TERMS

A **midpoint** of a segment is the point that divides a segment into two equal parts.

Segment Addition states the sum of the parts of a segment equals the measure of the whole segment.

Angle Addition states the sum of the parts of an angle equals the measure of the whole angle.

Find x if M is the midpoint of \overline{AB} .

1. $AM=6x+4$, $BM=7x-2$

2. $AM=12x-10$, $BM=8(x+1)$

Find x if R and T are endpoints of a segment and point S is between them.

5. $RS=2x$, $ST=5x+4$ and $RT=32$

4. $RS=4x$, $RT=24$ and $RS=ST$

Find x if \overline{AD} is in the interior of $\angle CAT$.

6. $m\angle CAD = 3x + 1$, $m\angle DAT = 2x$
and $m\angle CAT = 21$

7. $m\angle CAD = 7x - 9$, $m\angle DAT = 7x - 9$
and $m\angle CAT = 9x + 17$

APPLICATIONS

Find x if M is the midpoint of \overline{AB} .

1. $AM = 12x + 7$, $BM = 3x + 52$

2. $AM = 14x - 31$, $BM = 4(3x + 2)$

Find x if C and E are endpoints of a segment and point D is between them.

3. $CD = 14x$, $DE = 6x - 10$ and $CE = 90$

4. $CD = 7$, $DE = 8x$ and $CE = 5x + 20$

5. $CD=2x + 1$, $CE=24$ and $CD=DE$

Find x if \overline{AD} is in the interior of $\angle CAT$.

6. $m\angle CAD = 12$, $m\angle DAT = 2x$
and $m\angle CAT = 34$

7. $m\angle CAD = 4x - 1$, $m\angle DAT = 2x - 1$
and $m\angle CAT = 5x$

Geometry: Segment Addition, Angle Addition, Midpoint

Short Answer

1. Find x if A is the midpoint of \overline{HT} . $HA = 24x - 16$ and $AT = 8(2x + 5)$



2. Find x if I is the midpoint of \overline{LP} . $LI = 5(3x + 7)$ and $IP = 5x - 15$



3. Find x if R and S are endpoints of a segment and point Q is between them.
 $RQ = 32$, $QS = 4x$, $RS = 10x + 20$



4. Find x if C and D are endpoints of a segment and point W is between them.
 $CW = 28$, $WD = 9x$, $CD = 13x + 22$

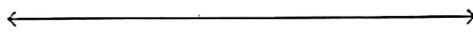


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5. Find x if A and B are endpoints of a segment and point P is between them.
 $AP = 6x$, $AB = 60$ and $AP = PB$



6. Find x if A and B are endpoints of a segment and point P is between them.
 $AP = 17x$, $AB = 102$ and $AP = PB$



7. Find x if \overrightarrow{OT} is in the interior of $\angle DOG$. $m\angle DOT = 16x - 20$, $m\angle TOG = 4x$ and $m\angle DOG = 80$.

8. Find x if \overrightarrow{OP} is in the interior of $\angle HOT$. $m\angle HOP = 3x$, $m\angle POT = 2x - 15$ and $m\angle HOT = 65$.